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THE RELATION OF THE SCHOOL PHYSICIAN TO THE FAMILY DOCTOR

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THE era of unrest has invaded the field of medicine. Everyone seems to be looking for trouble. No one can rest easy unless she has had a "*thorough* examination". The phrase, "Periodic Health Examination", is crowding out the old phrases, "Psychoanalysis" and "Inferiority Complex". School teachers, who begrudge three dollars for a doctor's midnight call to determine whether their abdominal pain means too much ice cream or a rupturing appendix, are falling over themselves to pay twenty dollars to have their "lives extended". There is confusion in it all. Many of the examinees feel that the examination *itself* will extend their lives, and the longer the examination, the longer the life.

Some doctors ridicule such examinations; some express honest fear that they will make of us a nation of hypochondriacs; but whatever their opinion about *adult* examination most doctors and laymen admit the logic of periodic examination of the growing and developing *child*. The examination fever, in one form or another, has therefore infected the schools.

Since it is in the matter of the school examinations that the school and family doctor come into contact (pleasant and unpleasant) it seems best to limit this paper on "The Relation of the School Physician to the Family Doctor" to a discussion of the problem of the school physical examinations, and leave out the other problems of school health supervision.

It should be said at the start that the problem varies greatly in different types of schools. The public school child often has no examination and no doctor except those furnished by the school. The private boarding school physician *is* the personal physician for nine months out of the year. My experience and the material in this paper deal only with the private *day* school. The following speakers will take up the problem of the private *boarding* school, and the *public* school.

When I started as school physician I was assigned to a school where I was to make periodic examinations of patients of your chairman, your secretary and members of this Pediatric Section. So do you wonder that a youngster, just out of the hospital, should have early come to the conclusion, that the thing to do was to throw the responsibility for these examinations back on these doctors, that is the family physicians.

Even after five years experience this was still my firm belief, and this conclusion was to have been the burden of this paper. Further study of present conditions has however made some changes in my ideas.

Let us ask then to what extent the physical examination routine has been developed in the private day schools; and whether this machinery can and should be made to stand the strain of the so called periodic examination of these children. The clearest way will be to trace the development in a particular school.

Five years ago the Beaver Country Day School was organized in Boston. A complete health program was to be developed in connection with the school. A medical board was appointed consisting of pediatricians, an orthopedic surgeon, and specialists in eye, ear, nose, throat and teeth. This board met at luncheon to outline policies, and strangely, as it seems to me now, concentrated all their attention on what sort of examination the school doctor should give. Each specialist outlined what seemed to him a necessary examination of his particular part of the body. The newly appointed school physician, his head swimming, made rapid notes and later evolved this record card.

This examination and card had only one virtue, completeness; and in this virtue lay their many faults. Too much time was required, twenty-five minutes for each child. Being so complete, the examination was made only once, at the time of entrance at the school, and *periodic* follow-through of such matters as nutrition, vision and posture were *apt* to be neglected. It was too complicated and technical to be of value to the teachers and school Heads. The school physician's interest in his problem was exhausted in the *examinations;* he was inclined to feel that he had already earned his salary about twice; and he wished to hide until time for the next examination He thus neglected to

Name **Date of birth** **Date of 1st exam.** **Class**

HISTORY

	Date		Date
Mumps		Tonsillitis	
Measles		Chorea	
Chicken Pox		Rheumatism	
Whooping Cough		Otitis Media	
Scarlet Fever		Convulsions	
Diphtheria		Typhoid	
Influenza		Pneumonia	
Infantile			

Injuries
Operations
Colds Sore throats
Headaches Constipation
Glasses: Dr Date
Teeth: Dr. Date
Small pox Vaccination (1) (2)
Typhoid Vaccination (1) (2)
Shick test Immunized
Menses began Dysmen
Appetite Between meals
Water Candy
Sleep P.M. to A.M.
Exercise
Ages of brothers (1) (2) (3)
Ages of sisters (1) (2) (3)
Remarks
Family Physician

PHYSICAL EXAMINATION

Peculiarities
Nourishment
Skin
Mucous membranes
Nodes
Eyes. R 20/ L 20/
Glasses Pupils
Ears: R 20/ L 20/
Nose:
Teeth: Gums
Occlusion Appliances
Tongue Palate
Tonsils
Thyroid
Chest
Lungs
D'Espines
Pulse: Volume
Heart: Impulse space cm.
Left border cm. 5th space
Right border cm. 4th space
Sounds P2 A2
Murmurs
After exercise
Abdomen
Liver Spleen Kidneys
Tenderness: RLQ CVT: Rt Lt
Genitals
Knee jerks Rt Lt
Clonus Babinski
Legs: Rt Lt Edema
Atrophy
Posture Head Chest
Shoulders Abdomen
Lordosis Scoliosis
Feet: Pronation rt lt
Arches rt lt Inner edges
Tender points
Joint motions
Urine: SpG Alb Sug Sed

Date						
Intelligence quotient						
Physical Rating						
Posture						
Weight						
Overweight — Approx. lbs.						
Underweight — Approx. lbs.						
Height — standing						
— sitting						
Chest — at rest						
— expiration						
— inspiration						
Vital Capacity in c. c.						
Blood pressure						
Hemoglobin (Tallquist)						
Pulse — before exercise						
— after exercise						

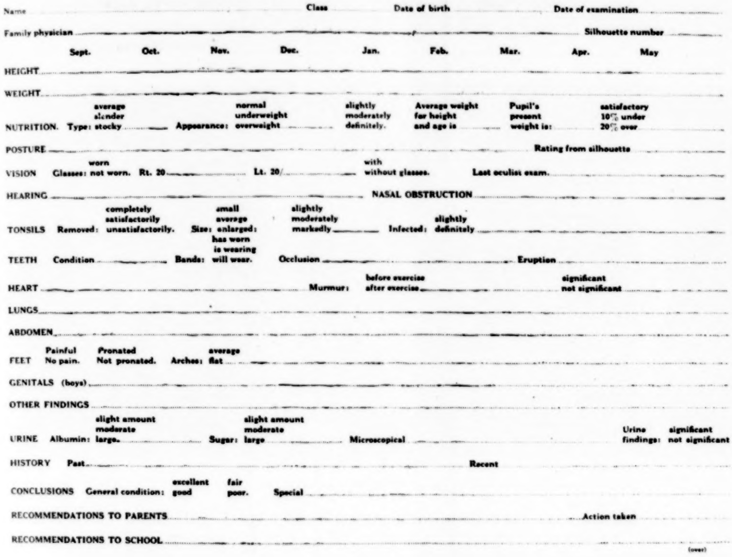
SUMMARY OF ABNORMALITIES

CARD 1

study such problems as the control of respiratory infection; rest periods; sitting posture; and over-exercise on the playground. However, these complete examinations were made for three years, and the findings are worth a brief summary.

It should be remembered that these children came from homes where there was more than usual interest in the child and exceptionally good medical supervision. The next table classifies the family physicians, the names being given by the child at the time of examination.

You will notice that, if at the beginning I entertained any hope of picking up mitral stenoses or other organic disease which your chairman had missed, such hope quickly vanished. Furthermore I did not find evidence of incipient disease, and I think only occasional cases are found by others in private school examinations. You will notice also that I have left out of this summary any figures regarding hemoglobin, blood pressure, vital capacity, chest expansion and other time-consuming procedures. This is partly in order not to confuse the picture, but largely because I saw, after trying all these things, that in my hands, with the time at my disposal, they were of little value to pupil or school, and of little interest to me.



Name Class Date of birth Date of examination

Family physician Silhouette number

Sept. Oct. Nov. Dec. Jan. Feb. Mar. Apr. May

HEIGHT

WEIGHT

NUTRITION. Type: average slender stocky Appearance: normal underweight overweight slightly moderately definitely. Average weight for height and age is Pupil's present weight is: satisfactory 10% under 20% over

POSTURE Rating from silhouette

VISION Glasses: worn not worn. Rt. 20 Lt. 20/ with without glasses. Last oculist exam.

HEARING NASAL OBSTRUCTION

TONSILS Removed: completely satisfactorily unsatisfactorily. Size: small average enlarged: slightly moderately markedly Infected: slightly definitely

TEETH Condition Bands: has worn is wearing will wear. Occlusion Eruption

HEART Murmur: before exercise after exercise significant not significant

LUNGS

ABDOMEN

FEET Painful No pain. Pronated Not pronated. Arches: average flat

GENITALS (boys)

OTHER FINDINGS

URINE Albumin: slight amount moderate large. Sugar: slight amount moderate large Microscopical Urine findings: significant not significant

HISTORY Past Recent

CONCLUSIONS General condition: excellent good fair poor. Special

RECOMMENDATIONS TO PARENTS Action taken

RECOMMENDATIONS TO SCHOOL

(over)

CARD 2

Family Physician	
Pediatricians	30%
Internists	40
General practitioners	20
No doctor	10
	100%

The next table will give a summary of the important defects found in two hundred *girls* between kindergarten and college age:

200 Girls in Private Day School	
Nutrition	
10% to 20% underweight	33%
20% overweight	7%
Bad Posture	15%
Definite visual defects not treated	11%
Bad tonsils	1%
Faulty occlusion or eruption	6%
Urine	
Albuminuria	6%
Glycosuria (one case)	0.5%

We found no true organic hearts. There were two widely transmitted apical systolic murmurs, which may or may not in these cases have meant valvular damage. One of these was known and followed, but the other, in view of the child's poor condition, I reported to the family physician, a gynecologist. He at first disregarded it and later took it to mean a probable cardiac condition. (I might say in passing that when the family found that I had originally reported to the doctor and not to them, they descended upon me.) Twenty-five percent of the girls had easily demonstrable functional murmurs.

We found no pulmonary tuberculosis and no hitherto unknown pulmonary pathology. I have no doubt we missed cases of "hilum tuberculosis".

In this group, tonsils are rarely a factor. One hundred and twenty-one of two hundred and two children, or roughly sixty percent, have had their tonsils satisfactorily removed. Teeth have received much attention, some think too much. One hundred and twenty-six of the two hundred and two, again sixty percent, have worn bands.

It had now become clear that if these examinations were to be continued, they could be much simpler and the record card should be one that would be of some use to the teacher and the parent. My next card was therefore of this form.

Name .... *Date of Birth* ....

Parents' Names ....

SCHOOL YEAR	1	2	3	HAS PUPIL HAD
Date of Examination				German Measles
Age				Measles
Height				Mumps Diphtheria
Average Height for Age				Whooping Cough
Weight				Scarlet Fever Chicken Pox
Average Weight for Age				
Average Weight for Height				
Teeth				
Tonsils				
Adenoids				
Glands				
Heart Organic Functional				
Lungs				
Nutrition				
Posture				Schick Test
Spine				Date Results
Vision				Immunization
Hearing				
I. Q.				Vaccination

CARD 3

As you will see, the examination is shortened, there is ample room for complete description when necessary, and no attempt is made to provide a card which can be used for consecutive years.

Some such examination is the one being made at most private schools around Boston. The urine examination is not made in the other schools. I wished to do it at least *once* as a matter of interest.

The next card is a still simpler one from another school.

The posture examination should be especially emphasized. We used the well known standards of Drs. Lee and Brown of Harvard and the technique of Mr. Fradd, also of Harvard. By means of a special camera, silhouettes can be taken directly on sensitive paper, developed at once and shown to the child at the time of the examination, often producing a good psychological reaction. Figure 1 gives such a record.

Reading from left to right, the first position is the back view to give relative height of shoulders, hips, etc.; the second position, the side view of what aims to be the natural standing posture; the third position, the child's idea of correct posture; and the last, the child put into what the physical director feels is the best possible position for that child. Incidentally such silhouettes give a good record of the type of build and the state of nutrition.

In carrying out this examination, the physical director made the silhouette, while one or two other assistants helped the doctor with the physical examinations. Leaving out urine examination, the time taken for each child was about ten minutes. Including urine examination, setting up apparatus, training assistants, etc., one hundred hours were spent last fall in getting records of two hundred children. Another year this time could be shortened.

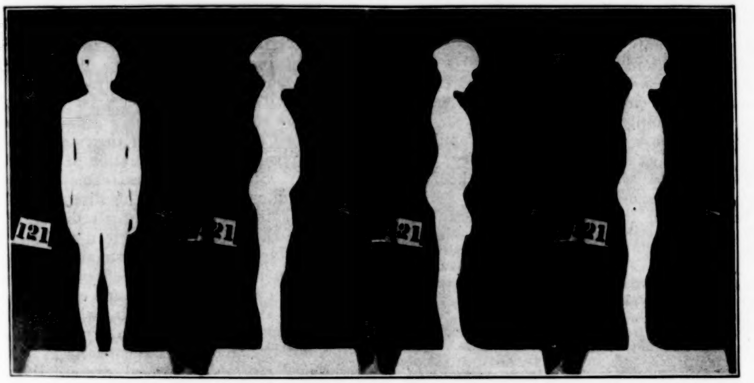


FIGURE 1

On the basis of these records, the following recommendations were made to parents, only a few of the defects found being reported.

Recommendations

	Number re-ported	Treated	No treat-ment neces-sary	No action by parents
Posture	23	18		5
Vision	14	8	4	2
Teeth	9	3	2	4
Tonsils	2	1		1
Albuminuria	9	3	2	4
Glycosuria	1			1
Circumcision·	2			2
Nutrition	21	8		13
	—	—	—	—
	81	41	8	32

It will then be seen that out of about eighty recommendations, fifty were taken up by the parents, and forty of these seemed to the particular doctor consulted, worth carrying out. The one child with glycosuria on two separate examinations at the school, said she had no family physician. The report to the parents was apparently neglected. She has lost five pounds in weight during the school year, but showed *no* sugar in a single specimen obtained a few days ago. This case now becomes one of the ticklish problems for a school doctor to handle.

No ***treatment*** of any kind was attempted at the school except in the case of posture, and this was undertaken only at the specific request of the parents. The problem of posture exercise at the school is beyond the scope of the present paper.

So much then for the physical examinations in a private day school, the points to be covered, the defects found, the recommendations made, and the attitude of the parents towards such recommendations. A certain amount of education had probably taken place, but one might still wonder whether such results justified the outlay of time and money. Peculiarly enough as my own faith in the examinations was decreasing, that of the school authorities and parents seemed to be increasing. The school felt that they were being protected from some indefinable something, the nature of which I could not determine, and many of the parents began to feel that the health of their children was being peculiarly well taken care of. Then all of a sudden, I woke up to the fact that instead of being a school physician, who made examinations for the school in order to be sure that a particular child was not going to injure himself by athletic exertion, or injure others by spreading contagion, I had become, yea, was, that new species of paradox "The Health Physician".

Parents were over-emphasizing the value of a short physical examination at school and failing to realize the significance of the fact that I did not know the child's background and home environment, had not seen its reaction to measles and whooping cough, and could not know its emotional make-up. What many did see, was that the school offered an easy and apparently cheap way of having the now popular periodic examinations.

It became important, then, to determine, as far as possible, just what reliance the parents were putting on the school examinations and just how much responsibility they expected the school physician to assume. We therefore sent questionnaires to the one hundred and sixty families. We asked the parents to classify themselves in one of the following groups:

First, those who depended *entirely* upon the *school* examination for a yearly check on the pupil's condition.

Second, those who used the school examination as a supplement to an occasional examination by the family physician.

Third, those who felt that their family physician was doing all that was necessary.

Fourth, those who felt that the school examination was harmful.

We received one hundred answers to this questionnaire within two weeks. The next table shows the result:

PARENTS' ATTITUDE ON SCHOOL EXAMINATION

Depending entirely upon it	35
Using it as a supplement	50
Depending entirely upon family physician	14
School examination harmful	1
Total	100

A further question was as to how many would be willing to have the school *require* a yearly examination by the family physician? Forty-four answered this question with a flat "No"; forty passed the question by; two showed a willingness to have it done if the school desired; and only fourteen seemed to approve such a scheme.

Many of the comments were illuminating, a number stating that the school seemed to them the *natural* place to have the examinations made. To quote, "A child being examined as one of many does not dwell on the matter morbidly".

Others pointed out that in group examination, a certain *standard* was set to which the child could aspire. Still others felt it important for parents and children to realize that the school was interested in the whole problem physical as well as mental and moral. More than I expected expressed gratitude for defects reported.

I was interested in reports from two other schools where the parents may *choose* whether the family physician or school physician shall make the examination. One reported that only seventy-five out of two hundred and sixty-five children are now examined by the family doctor; and the other that only eight out of one hundred and seventy-two families wished the family doctor to make the examination.

One parent at the Beaver Country Day School argued *against* the school examination with the following interesting comments: "In a general way my view is that schools are relieving parents of their responsibilities too much. It is bad for us parents and probably bad for the children in the long run".

But this latter view was the exception, and our conclusion from the study of the answers was that the majority of the parents did want periodic examinations by the school physician, and in many cases gave good reasons why. Most of them, however, failed to realize that a true "health examination" required more time in history taking and physical examination than the school physician could give, and needed besides a more intimate acquaintance with the child and its family.

We then sought help from a different quarter and turned on the *Heads* of thirty-eight schools in the Private School Association of Boston and vicinity. Sixteen answers came from day schools and can be used in this discussion. These include, I think, practically all the large day schools in the vicinity. Fourteen of the sixteen schools have their own physicians, who make yearly examinations. The other two depend upon their physical directors and are apparently satisfied. Two of the schools, who are having examinations, are a bit doubtful as to their value, but twelve of the sixteen seem to feel that the school doctor's physical examinations are necessary and worth while. It was very enlightening to try to approach the problem from the standpoint of the school Head. There are apparently two different points of view. One group looks upon the school examination simply as a means of protecting them from injuring the child on the playground and from spreading contagious disease; the other group is looking at the problem from a much wider point of view. They are becoming more and more aware of the interdependence of the physical and mental life and are unwilling to undertake the development of the mental side without knowing the child's physical background and condition. This latter group want from the school physician, not only reports of the child's physical condition, but also his advice throughout the year in adapting the school program to each particular child. To such groups, reports from the family physician, even if available, would be of comparatively little value.

As one Head puts it "The school can gain little from them as the standards and theories of the different family physicians vary so much". Or as another says "Doctors seem to me to vary a great deal in their respective opinions in regard to not only the physical condition of the individual, but the physical activities in which he should indulge". From both standpoints then, that of safeguarding the child on the playground and that of help in his daily development, the school Head feels the need of a uniform report, not only on uniform blanks, but reports from the same examiner, whose methods and attitude they know, and who in turn knows the particular school with its opportunities and dangers.

Writing along this same line, one boarding school *physician* reports as follows: "After fifteen years of experience in examining girls at two schools, I have been struck with the fact that two-thirds of the certificates presented by family physicians to the school have not been based upon a careful physical examination, but rather upon conclusions drawn because he has known the girl since birth and often in all this time the pupil has never had a stethoscopic examination of heart and lungs". I note this here because some of the doctors, whom I have consulted, have admitted guilt in this direction.

I followed one other line of investigation and attempted to get the reactions from school physicians and family physicians. I was able to get in touch with ten physicians of *day* schools, all of them practicing physicians. About half of them felt that it *might* be possible to have the school examinations taken over by the family physician, but on the whole they seemed to feel that a simple examination at the school was necessary and worth while.

I was less successful in getting in touch with family physicians, who are not school doctors, but the few who replied were very *much* interested in the problem and not by any means antagonistic. All had had unpleasant experiences, but I think most of them felt that at the present time, periodic examinations might well be made at the school. These men naturally were the ones who stressed care in regard to *recommendations*. As one doctor put it, "When the examination is conducted by the school physician, extreme care should be exercised to keep the details of the examination and its report well within the bounds of common sense". Another said, "I believe the most effective use of the school physician is to be had in a close cooperation between him and each of the family doctors involved. With tact and experience and intelligence, the school physician can easily and kindly both advise and protect the family physician in his entirely legitimate and useful relation to the family without causing friction, thereby doing the individual patient the best service".

One internist, who had seen men wrecked at the age of thirty-five or forty-five years because in earlier life they had been improperly guided in major athletics, or had chosen careers for which they were physically unfitted, felt strongly that the school physician might help prevent such tragedies if he had the *internist's* rather than the pediatrician's point of view.

IN CONCLUSION

(1) At the present time, the majority of school heads, parents, school physicians and family physicians, feel that yearly physical examinations should be made even in private day schools.

(2) Such examinations should, however, be simple, careful, and recorded in non-technical language.

(3) Such examinations can not replace those of a careful family doctor, and too much dependence should not be placed upon them.

(4) The school physician should not exhaust himself on the examinations, but should have some interest left for the follow through.

(5) Where reports are sent to parents or doctors, *great* discretion and tact are essential.

DISCUSSION

DR. JAMES H. TOWNSEND, Concord, N. H.: Dr. King has spoken of the relation between the school physician and the family doctor in day schools where the children live at home under the supervision of the family. I want to say a few words about this relationship in boarding schools.

In most boarding schools the children are no longer under the constant supervision of their families, but are, so to speak, turned over bodily to the school for a period of eight or nine months of the year, and during this time the school has almost entire responsibility for their welfare. This you see, creates a relationship which is fundamentally different from that in day schools.

It therefore becomes the responsibility of the school physician to acquaint himself as fully with the history and the condition of each child as if he was his own patient in private practice. In fact it frequently means more than this, for parents having handed over this responsibility are accustomed to demand more care for their children than they themselves would give them.

Under these conditions it is obvious that the annual physical examination must be a very thorough one, and that in addition to the objective examination, detailed information must be obtained regarding the past medical history of each child. Furthermore certain children who have organic defects or who are under par for some reason, must be kept under special supervision, and seen from time to time just as they would be in private practice.

In day schools when children are sick, they are taken care of at home by the family physician. In boarding schools however, they must be cared for at school by the school medical staff, so here again we have an entirely different condition from that which exists in day schools.

One might almost say that in boarding schools the school physician becomes the family physician pro tempore, yet this is not quite true because there is always a family physician at home to whose care the child will return when he leaves school, and whenever possible the school physician should co-operate with him in matters concerning the child's health.

Many medical procedures which are not of an immediate nature are postponed until vacation time when they can be done at home. When defects are found at the physical examinations, especially when these may require some operative procedure such as tonsillectomy, the condition is reported to the family with recommendation that the family physician be consulted. Only exceptionally when some procedure is urgent or the necessity of it is very obvious is any definite advice given. Instead our letters are apt to read after this manner:

Dear Mr. Jones:

The doctor who examined John's nose at the time of his physical examination, reports that he has a rather marked deviation of the septum towards the left side, causing obstruction to breathing through that side of his nose. As this may bear some relation to his rather frequent ear abscesses in the past, we suggest that you seek the advice of your family physician in regard to this condition the next time he is home.

Examinations by the oculist, orthopedic or other consultants are made at home during vacation, unless the condition requires immediate attention.

Many children in boarding schools have conditions for which they are being treated by their family physician. In such cases the treatment is carried on at school under the direction of the family physician, and every effort is made to comply with his wishes. For instance many children receive hay fever inoculations, and others are taking "gland pills" regularly.

In short the school physician must be familiar in detail with the condition of each child, and must be prepared to care for any medical condition which arises while the child is at school, but any procedures which can be postponed are turned over to the family physician, and every effort is made to co-operate with his wishes while the child is in school.

Dr. Charles W. Milliken, New Bedford: The preceding speakers have spoken to you from the standpoint of the examiners of private schools.

My job is in the public schools, and I propose to give you an idea of the work there and the relationship to the family doctor from that viewpoint.

New Bedford began, as the result of an epidemic in 1900, to introduce a health program into the schools by the employment of two school physicians by the Board of Health. In 1911 the Department of Education put one nurse into the schools. These two beginnings have gradually expanded until in 1922 the whole health program was taken over by the Department of Education. They put at the head a Director who had seven nurses, a psychologist, and a part time oculist as assistants.

As the third Director in charge I now have the psychologist, part time oculist, one supervising nurse, one mental history nurse, one nurse assisting in my examinations and seven nurses devoting their time to thirty-two schools and the necessary follow-up home visits. This does not include the High School, the two rural schools, nor the conservation of eyesight classes which are under the supervising nurse. I have no assistant examining physicians.

In the public schools of a cosmopolitan city like New Bedford it is obviously impossible to require a physician's certificate of good health for the 18,000 children before admission. We have therefore adopted the policy of examining all of the new entrants both at the beginning of each of the two terms and midterm if from another city or town. (We have two terms for admission and graduation.) Also such children as are referred by the principal, teacher, or school nurse, all of the girls in the High School taking gymnasium, which is compulsory in the first two years, all the boys in the athletic squads of the High School, the pupils in the open air classes, and all children more than 10% under weight.

This has totaled the past year as follows—2326 in the primary schools, 264 in the grammar schools, and 807 in the High School.

Our methods of procedure are as follows—We select a different nurses' school for each of the five days of a week bringing the day on that regularly scheduled for her.

Previous to the examination, blanks are sent home by the children to be examined, which, when signed by the parent or guardian, request and permit a complete examination. This slip also invites the parent to be present.

We are getting about 93% of these stript-to-the-waist examination. In the High School we are omitting this formality and asking the girls to remove their dress, waist, or blouse as the case may be. We find this gives us the chest sufficiently uncovered to permit of an accurate examination. No word of protest to this procedure has as yet come to our ears. The boys of the athletic squads of the High School are examined nude in the locker rooms at the athletic field.

We have had in the year and a half that I have directed this work but two children to present certificates from their family physician that they were in good physical condition. These are accepted of course and no examination is attempted on these children. We have had many certificates from parents that their children were free from defect, or that they have been examined by their family doctor, but not being accompanied by the physician's certificate we have given them as complete an examination as possible over the clothing. When defects are found these children get notices to take to the parents the same as the others. When we find a child normal, a slip to that effect is sent to those parents who have requested the complete examination.

A record of each examination is made on the State health card which is kept in the child's school room and on a tabulation sheet which is made for me for the office.

These are made by the nurse in charge of the school in which we are working, and gives her first hand information about the child. She also makes out the normal and defect slips for the parents at the same time. In this way we can examine about twelve to fifteen an hour. It is less than this when many parents are present for they are not always as quiet as the children.

Within a few days after the examination the nurse of the school has visited all the homes of those children having defects.

It is now we come in contact with the family doctor, although in a manufacturing city of 130,000 it is inevitable that there will be many transient inhabitants who have never employed any physician. There are also many who have had several every year. *All* cases of defect are referred to the family doctor and in all cases that are financially able the nurse tries to put the case strong enough so that this is accomplished.

If the circumstances are poor a card is given to the public clinic. We have two of these, one connected with St. Luke's Hospital, which is very complete in its appointments and service, and the Ladies City Mission Society where the service is limited.

From each of these a social service worker investigates the circumstances of the family and if worthy they get the service.

In as many cases as I can and particularly those requiring immediate attention, I personally communicate with the family doctor that he may get my viewpoint. I feel that this engenders a spirit of co-operation that is very beneficial.

It is obvious that all cases of abdominal conditions should be referred to the family doctor.

Postural cases, thought to be correctable by exercise, are first referred to our Department of Physical Education, then, if not showing the right progress are referred to the family doctor or orthopedic clinic.

In the figures that I am going to present, I am not including the examinations of those children in the grammar schools nor the boys of the High School athletic squads as these examinations are not as complete as the others and, to make them more interesting, I am going to make a comparison between the 2326 in the primary schools and the 703 girls of the High School.

In the primary schools we find (1482 or) 63.7% of the children within the normal limits of weight, that is, within 7% either under or over the accepted standard of the Baldwin-Wood tables.

In the High School the girls show but (329 or) 46.9% within normal limits. Both the primary and High Schools show the same number (141) to be 10% or more underweight but the percentages differ widely, being 6% for the primary and 20% for the high. Although this indicates more malnutrition and sylphlike figures among the High School girls it is a peculiar fact that we have in the primary schools (353 or) 15% who are 10% or more overweight and in the High School we have (119 or) 16.9%. During the last few months we have taken a class of overweights in one of our grammar schools and put them on a diet and exercise to reduce. During the first two weeks every one gained a half pound but since then the reduction has been gradual and they are enjoying it immensely.

The examination of the thyroid gland has been an interesting study. In the primary schools we found but (53 or) 2.3% with any degree of enlargement while among the High School girls we found (114 cases or) 16.2%, several of them large enough to be under the observation of their family doctor, and we so recommended.

In all of my examinations I mark the defects by the degree of extent, using 1 for a slight defect, 2x for one needing supervision, and 3x for one requiring emergency measures.

In the matter of enlarged tonsils, I think that I am conservative for of the (849 or) 36% found in the primary schools, I considered but (22 or) .9% to be emergency cases, although (334 or) 14.3% were large enough to be referred to their family doctor. Every one of these had enlarged cervical glands in connection with them. We also found (429 or) 18% who had had them removed.

In the High School I found (95 or) 12% with some enlargement while only one was considered an emergency and (38 or) 5% were referred to their physician for observation. (234 or) 33.2% had had a T & A operation.

During the past year we have been instrumental in getting 450 T & A operations on the children of the whole school system.

The question of vision is an important one in the school life of the child. We begin our examinations of the eyes in the kindergartens. These are done by the teachers or principals and all defects of 20/40 or more are checked up by the school nurse.

I like the idea of the principal doing this work as she will by experience become more accurate and dependable.

Taking the figures of the teachers we find that in the primary schools (620 or) 26.6% had a vision of 20/30 in one or both eyes, (106 or) 4.5% a vision of 20/40, (49 or) 2.1% of 20/50 and (15 or) .6% of less than 20/50.

In the High School the eyes of the girls were all tested by the supervising nurse and here we found (103 or) 14.6% with a vision of 20/30 in one or both eyes, (19 or) 2.7% of 20/40, (21 or) 2.9% of 20/50 and the same with less than 20/50. How girls in the High School could do their work with the vision of 20/50 or less is beyond me, but happily many have remedied the defect with lenses since the examinations.

We have been able in the whole school system to get 891 children fitted with glasses or lenses changed during the past year.

In regard to conditions of the heart we find about the same percentages in the primary and High Schools—In functional disorders we find that many are due to the use of tea or coffee which is quite prevalent among the foreign people. There were about 5% in the primary schools and nearly 8% in the High School. There were 2.6% with organic lesions in the primary schools and 2.1% in the High School. Knowing the dread that many people have in regard to a heart disease we have been careful in our notices to the parents, and instead of sending the notice home by the child, we have had the nurse take it at the time of the home visit. In cases that show symptoms, or are accompanied by large or diseased tonsils, the parents are urged to take the child to their family doctor at once. When the damaged valves are well compensated for and no symptoms are apparent we notify the parents to be on the lookout for trouble, and advise proper hygiene.

During the past winter we found 420 cases of mild lung conditions in the primary schools. These were mostly colds with slight bronchitis. However, we found 20 others with paravertebral dullness indicating enlarged bronchial glands—These cases are carefully followed by the school nurse and if they show a loss of weight with fatigue, etc., they are excluded from the regular classes and put into the open air classes of which we have two.

The school nurses are constantly on the watch for skin and scalp defects and as a rule do not have much difficulty in correcting them.

I have made no mention of teeth defects as they are cared for by four dentists and eight dental hygienists under the Board of Health.

In January of this year the School Committee passed an order that a small-pox vaccination exemption certificate should only be good for one school term. The enforcement of this order resulted in getting over 3000 children vaccinated but we still have over 700 who are exempt. As these certificates were given in cold weather I feel that many were given through fear of catching cold in the wound, and that many of these will be removed before the fall term of school in September.

As we have had mild epidemics of measles, scarlet fever and chicken pox this year, many visits have been made to schools and whole rooms examined for these diseases, many cases occurring that have not consulted a doctor.

In conclusion I can only bring out the point which you must have all seen that in the examination of public school children we can only depend on the family doctor for his co-operation in remedying the defects we find. We would thank the family doctor to advise us of any defects for which he desires us to favor a child. And we would also thank him to report promptly to the Board of Health all contagious diseases that he may see.

Dr. E. H. Bigelow, Framingham: I want to pay tribute to the school physician. For many years I have been helped by a physician receiving $300 a year, I got a card from him to look after a child in such a family—pretty near saved my life. We have 22,000 in our little town, and we had a half time school physician who was paid $2000 and now have a full time doctor paying him $3500. The question is, what does that mean? I was talking with him recently and he wanted to know if eight hours a day for five days was a fair stunt, I told him it looked pretty good to me, I was getting old, but if I can convey to Framingham that you approved of 40 hours a week, it would help us.

Dr. H. C. Tooker, Springfield: I would like to ask Dr. Milliken how much weight he puts on paravertebral dullness in enlarged bronchial glands and if he thinks, in his opinion, if any of us are good enough to make a diagnosis on that sign of the lung?

Dr. J. M. Wadden, Cambridge: I would like to ask Dr. Milliken his opinion in regard to yearly examination of youngsters, in every year. Take a school in most cities and take a good many pupils in the city, having a lot of half time and part time physicians doing the work, it is almost impossible to get a thorough examination of every child once a year and have it complete. Whether it is not better to have an examination every three or four years for instance the third, fifth and eighth grade and have it thorough, rather than attempt to do an examination every year and have it only partly done?

Dr. Milliken: In regard to paravertebral dullness, I would say that I was with the State Department of Public Health six years and for two years conducted clinics the same as Dr. Chadwick, so that I feel that personally, I know what that indicates. I do not feel that the family physician has acquired proficiency as yet, but I think he is coming to it all the time.

Regarding the other question as to yearly examination of all children, that is ideal, but with the limited funds for that purpose, New Bedford doesn't feel like hiring three or four part time physicians as assistants. The examinations that are made during the first year and the defects found are followed up in the following years by the nurse and the cases that have not had the defects remedied or are not showing improvement in every way, are re-examined. I think it would be ideal if we could examine all the children on entrance to school and once or twice later on, but I would like to have three or four good half time physicians as assistants, though I don't feel like asking for it just at the present. Does that answer your question, doctor?

Discussion closed by **Dr. King**: I have very little else to say, as far as the private day school is concerned, think the whole thing in the process of evolution. I certainly don't know where the thing is headed. Don't believe many of you do. Don't know what the ultimate solution of the problem is going to be, seems to me all the indications are to proceed slowly and with a good deal of tact and discretion.

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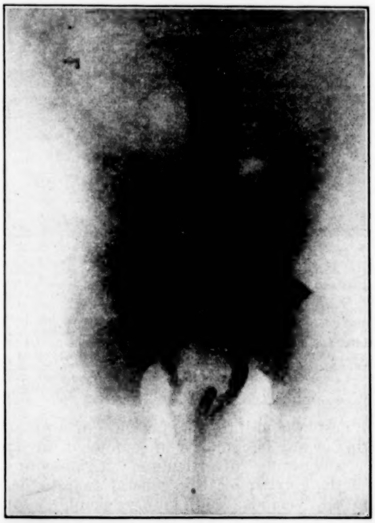
THE SURGICAL ASPECTS OF PYURIA IN CHILDHOOD

BY CHARLES G. MIXTER, M.D., F.A.C.S.

Pus in the urine in varying amounts is frequently encountered in the examination of sick children. It may be transient or persistent. The serious aspect of pyuria with high fever, vomiting, and prostration typical of acute pyelonephritis, is widely recognized. The menace of persistent or recurrent pyuria is little realized and cases frequently come to careful urological examination only when advanced renal destruction has already taken place. Too great dependence has been placed on the value of urinary antiseptics and forced fluids, even in the absence of any evidence of improvement. When pus persists in the urinary sediment the tonsils, teeth, ears, sinuses and other regions of possible focal infection are investigated to find the source. Radiograms of the kidney region are often neglected and cases have been seen with pyuria and renal destruction of long standing from calculi when the diagnosis could readily have been established by this simple procedure. Little heed is given to the possibility of there being a sufficient cause of the persistent pyuria in the urinary tract itself during the early years of life.

In the past few years through the co-operation of the medical service at the Children's Hospital I have had the opportunity of making a careful urological examination in many cases of chronic pyuria in which distant foci of primary infection have been ruled out. In a large group of the cases no causative lesion could be demonstrated, but in the remainder, which constitute perhaps one third or one quarter of the total number, a definite underlying cause of the pyuria has been established by cystoscopic means. From this experience I feel that the necessity of a careful urological examination to prevent extensive renal impairment or even a fatal outcome, should be strongly emphasized in all cases that do not yield to medical measures within a reasonable length of time.

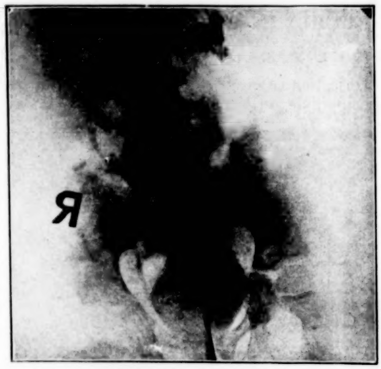


STASIS FROM FAULTY ENERVATION--POST-OPERATIVE SPINA BIFIDA

No. B. S.—Female—5 years. April 15, 1925. Born with low spina bifida. Operation with excision of sac when a few weeks old. No hydrocephalus or paralysis of extremities. Marked constipation. Incontinent. Tonsillectomy three years ago. Urine has contained pus since that time. On examination the bladder was found to extend to the umbilicus. Constant dribbling though able to void a few ounces voluntarily. Pyuria. Cystoscopy showed a trabeculated bladder. The ureter orifices were widely dilated of the golf hole type. There was a bilateral ureteral reflux and hydrouretero-nephrosis.

Objection to cystoscopy in childhood has been considerable on the ground that it is a major procedure and requires a general anaesthetic. In more than one hundred such examinations in the last few years, no serious after effects have been observed. As familiarity with the methods of such procedure in childhood increases, the number of cases that do not require a general anaesthetic multiplies. Many boys of ten and eleven years of age and girls as young as six can frequently be examined under a local anaesthetic.

The first steps in the urological study of a case of pyuria are the usual laboratory examinations including bacteriological investigation, renal function and non-protein nitrogen estimation and radiographs of the urinary tract. A catheter should be passed and a cystogram made with 12% sodium iodide, both antero-posterior and lateral views being taken. This procedure will demonstrate certain types of obstruction of the posterior urethra, the presence of a ureteral reflux or any irregularity of contour of the bladder suggesting diverticulum. Cystoscopy is then done under local or general anaesthesia as the case demands. Both kidneys should be studied, as the risk is only very slightly increased and is less than the discomforts and dangers attending a repetition of the examination when a general anaesthetic has to be employed. After inspection of the bladder the ureters are catheterized and separate specimens collected from the kidneys for microscopical and bacteriological examination. Pyelograms are made with sodium iodide, the catheters are withdrawn to the lower ureter and ureterograms are made, and in conclusion after drainage of the ureter for several minutes, final plates are taken to show the emptying time of the pelves. The ureterogram is fully as important as the pyelogram, as it is by this means that ureteral stricture or kink can be demonstrated. The amount of sodium iodide varies from 2 cc. to 5 cc. with the size of the child, but where hydroureter or hydronephrosis is found to be present by a free prolonged steady flow of urine, much larger amounts may be used. The divided renal function test is unsatisfactory owing to the small size of the catheters necessarily employed with the baby cystoscope which permits leakage down the ureter vitiating the test.



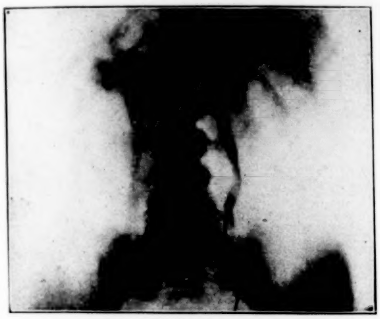
HORSESHOE KIDNEY—CALCULUS

No. A. C.—Male—7 years old. November 13, 1925. For three years has had attacks of pain in right lower quadrant of abdomen accompanied by vomiting and fever. Urine generally milky during attacks. Becoming more frequent and severe. Has frequency—no hematuria. Cystoscopic appearance of the bladder and ureteral orifices normal. Ureteropyelogram showed an abnormal right pelvis with rotation and a calculus in the lower calyx. The pelvis on the left was within normal limits and a calculus was present in the middle calyx. The appearance of the right pelvis suggested an anomaly. At operation for the right renal calculus a horseshoe kidney with a broad connecting isthmus was found.

Urinary stasis causes destruction of the kidney by back pressure, and is sooner or later followed by infection. Though unsuspected tuberculosis or calculus may be the underlying cause in certain instances of long persistent pyuria, it is the obstructive lesion that furnishes the majority of cases of severe destructive pathology of the kidney. It is this class of case that I wish particularly to bring to your attention.

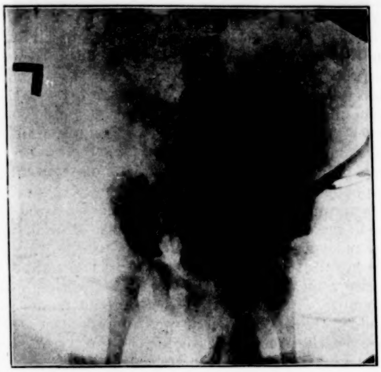
In general the lesions causing renal destruction by stasis and infection can be placed in four groups. First, intrinsic lesions of the urinary tract, such as ureteral stricture or kink, and obstruction at the vesical neck or in the deep urethra. Included in this category are the developmental anomalies of which renal and ureteral ectopia and horse-shoe kidney are examples. Group two comprises obstructions to the urinary outflow caused by pressure on the urinary tract from without. Here may be placed ureteral obstruction from the pressure of accessory vessels to the lower pole of the kidney, and the stasis seen in duplication of the ureters. In the latter condition duplication may be unilateral or bilateral, and complete or incomplete. In the complete variety the ureter from the upper pelvis runs to the lower of the two orifices in the bladder, while the ureter from the lower pelvis empties through the upper orifice. The ureters necessarily cross in the descent to the bladder and it is at the point where they are superposed that pressure occurs with a consequent proximal stasis. In the third group are placed the cases of idiopathic dilatation of the ureter or megaloureter. Here no true obstructive lesion can be demonstrated, but it is evident that the calibre of the normal ureteric orifice is insufficient to drain adequately the tremendously dilated ureter and pelvis present in this condition. The great majority of the causes underlying urinary stasis in childhood are of congenital origin, though occasionally stricture may be secondary to inflammatory reaction. In the fourth group, are the cases in which stasis is produced by interference with the normal enervation of the urinary tract. The lesions of this type most frequently seen are caused by spina bifida, either of the simple or occult variety.

There are three levels at which intrinsic lesions of the urinary tract are most commonly encountered. At the uretero-pelvic junction is found stenosis which may be complete or partial. The former condition gives rise to the large retroperitoneal congenital cysts. There is practically total kidney destruction and the character of the tumor is established by finding at operation the shell of renal parenchyma spread out on the wall of the cyst. As the obstruction is complete no urinary symptoms are present and the urinary findings are negative, the presence of a visible and palpable tumor inducing the parents of the child to seek medical aid. Partial stenosis or stricture at the uretero-pelvic junction produces hydronephrosis with subsequent infection. A moderate degree of dilatation of the ureter may also be present from a secondary ureteritis, though it is difficult to explain its occurrence in some cases of apparently mild infection, while in other instances of long standing where the urinary findings indicate a severe infection, no dilatation is found. Faulty implantation of the ureter into the renal pelvis produces inadequate drainage and an obstructive valve-action that is more difficult to overcome as the hydronephrosis increases. The other lesion encountered at the uretero-pelvic junction that leads to renal destruction from back pressure and infection is ureteral kink. The ureter in early life is more apt to be redundant and tortuous, and angulation can frequently be shown by ureterogram. In most instances no stasis is caused and the emptying time of the pelvis is normal. That obstruction however can occur was proved in a recent case where nephrectomy was done for hydronephrosis, the ureter being sectioned some distance below the pelvis. The kidney remained distended until traction was made straightening the ureteral kink, when there was a free flow of urine and the hydronephrotic sac collapsed.



URETERAL KINK

No. 28697—Female—Age 8 years. June 29, 1922. Pyelitis August, 1920. Under medical treatment until November, 1921. Tonsillectomy October, 1920. Since then perfectly well until seven weeks ago. Recurrence with urgency, frequency and left lumbar pain and fever. Large amount of pus in urine. Cystoscopy, July 5, 1922. Turbid urine obtained from left kidney. B. coli in pure culture from both kidneys. Ureteropyelograms show kinking at uretero-pelvic junction on both sides. Some blunting of calices. Operation October 14, 1922. Nephropexy—with straightening of ureter on left. Patient followed for one and one-half years—no urinary symptoms or recurrence of pain. Urine still contains pus.



OBSTRUCTION AT VESICAL ORIFICE—CYSTIC DILATATION OF URETERAL ORIFICE

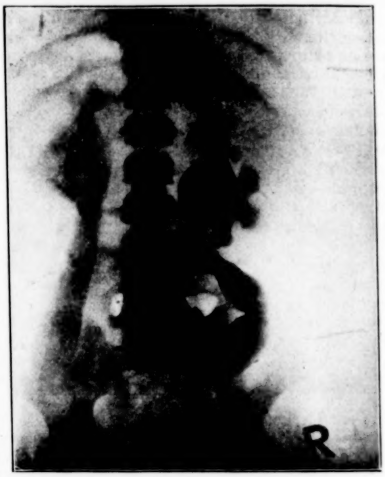
No. 77925—Male—19 months. December 17, 1925. Pylorotomy at one month for pyloric stenosis. Dysuria for two months. Chronic distension of bladder, dribbling and pyuria. Catheterization unsuccessful, obstruction in posterior urethra. Cystotomy—large cystic dilatation of right ureteric orifice. Cystogram shows ureteral reflux. Pyonephrosis developed on right side and nephrectomy done. Double ureter and pelvis found. Suprapubic drainage followed by excision of wall of cystic dilatation with resumption of normal urination and closure of suprapubic sinus. More than one year has elapsed since last operation. Voiding normally. General health excellent.

At the vesical end of the ureter simple stricture, and stricture with cystic dilatation is encountered. If the ureteral orifice alone is stenosed, involving simply the mucous membrane and submucosa, a cystic dilatation may be formed which projects into the bladder and may attain large size. The minute orifice is situated on the surface of this cyst. There is hydroureter and hydronephrosis with infection following the urinary stasis. An example illustrating this condition occurred in a girl of six, who was admitted to the medical service in uraemia. She had been treated for two years for pyelitis by her uncle, who was a doctor. Her condition was so serious as to contraindicate cystoscopy. A cystogram however was taken that showed an area of lessened density in the bladder region that was thought to indicate incomplete filling. Her uraemia increased and death followed a few days later. At autopsy bilateral cystic dilatations of the ureteric orifices were found, that on the right side being of very large size and producing the filling defect seen and erroneously interpreted in the cystogram. Had the child been examined urologically before renal decompensation occurred a simple surgical procedure with excision or slitting of the intra-vesical portion of the cysts would have saved the kidneys and her life.

Stricture of the intramural portion of the ureter likewise gives rise to hydroureter and hydronephrosis. Secondary infection follows and the inflammatory nature of the stricture is hard to disprove though it is probable that it is of congenital origin. An instance of a lesion of this character was seen in a girl of seven years. Four years previously attacks of abdominal pain with costovertebral tenderness had begun, and pus had been noted in the urine. Seven weeks previous to admission there has been an attack of acute abdominal pain with fever vomiting and pyuria. The symptoms did not abate and after several days a tender mass was palpable in the right lower quadrant and appendectomy was performed. The appendix was found to be normal and the mass proved to be a greatly dilated right ureter. Following her recovery from operation she was admitted to the hospital and cystoscoped. The right ureter orifice appeared normal but an obstruction was encountered less than one centimeter from the bladder, beyond which it was impossible to introduce the smallest catheter. Cystotomy was done and a tight fibrous stricture of the intramural portion of the ureter was found. This was divided by slitting the ureter obliquely upward in its course through the bladder wall. The enormously dilated ureter was drained with a medium sized soft rubber catheter, for a period of two weeks. In the fifteen months that have elapsed since operation there has been no recurrence of the attacks of pain and fever, and the urinary sediment shows only occasional white blood corpuscles.

The symptoms of obstructive lesions of the upper urinary tract are referable to the kidney and when infection has supervened are typically those of acute exacerbations of chronic pyelitis. Where the obstruction is situated at the vesical neck or in the deep urethra, difficulty and pain on urination is usually noted. With the latter lesions the gross pathology of the urinary tract above the obstruction is striking. The bladder is greatly thickened and trabeculated, and sacculations are frequently formed. The ureters are tremendously dilated and there is marked renal impairment from hydronephrosis and infection.

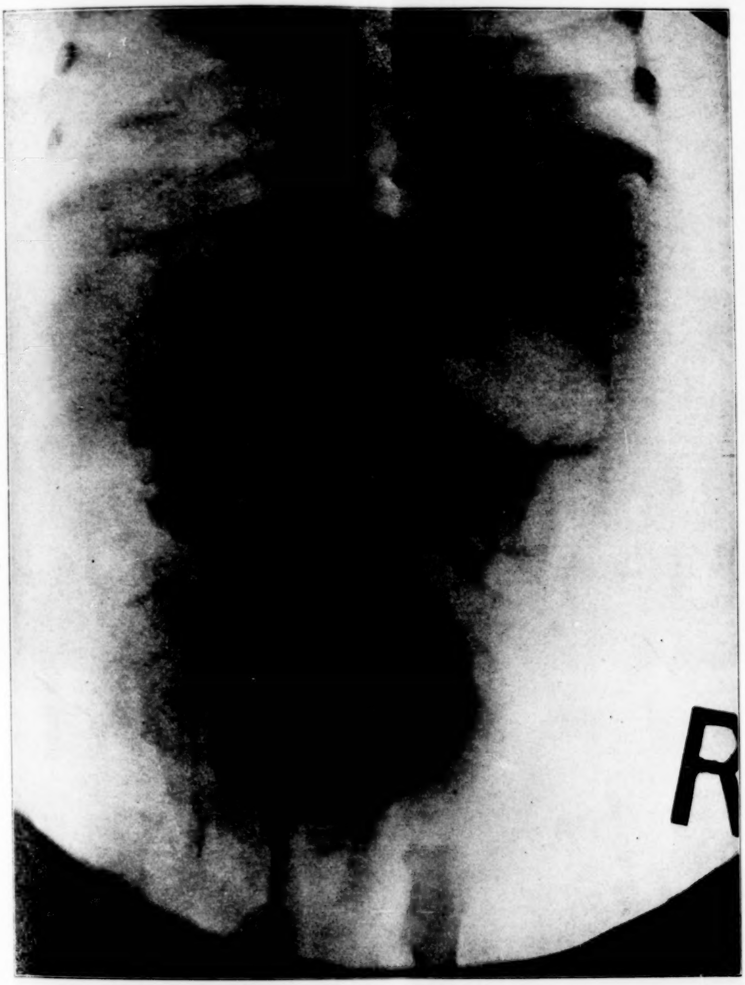
Obstruction in the deep urethra is caused by congenital stricture, by valve-like folds in the region of the veramontanum or by hypertrophy of the veramontanum itself. Stricture occurs where the downward growing proximal urethra and the inward growing distal segment fail to unite accurately. Two cases have been seen in which the two segments ended blindly and communication occurred through a minute lateral opening where the blind ends overlapped. Valves are formed by folds of mucous membrane that usually arise close to the veramontanum and are attached to the circumference of the urethra below the internal vesical orifice. As pressure is exerted on them in the act of expelling the urine, the valves belly downward like curtains and tend to approximate in the median line, shutting off the urinary stream. Catheterization can generally be accomplished without difficulty, but after opening the bladder suprapubically attempts at retrograde catheterization fail as the instrument runs into the pockets formed by the flaps. Interference with the urinary outflow from the bladder by an hypertrophy of the veramontanum without the formation of valves has been reported in the literature but no instance of this type of lesion has been seen in our clinic.



OBSTRUCTION AT VESICAL ORIFICE

No. 90531—Male—6 years. January 28, 1926. Difficulty and straining on urination noted for long time. Two years ago acute attack with vomiting, distension and fever accompanied by pyuria. Four similar attacks in last few months. Urinary output increased after attacks. Frequency $\frac{d \times 5\text{-}6}{n \times 4\text{-}5}$. Polydypsia. On examination the bladder was distended. Renal function was 35% for two hours. Colon growth. Cystoscopy. Marked trabeculation of bladder. Bilateral hydrouretero-nephrosis. Operation. Cystostomy with plastic on both ureter orifices for drainage of infected hydronephrosis. Second operation, excision of V from obstructing bar across vesical orifice.

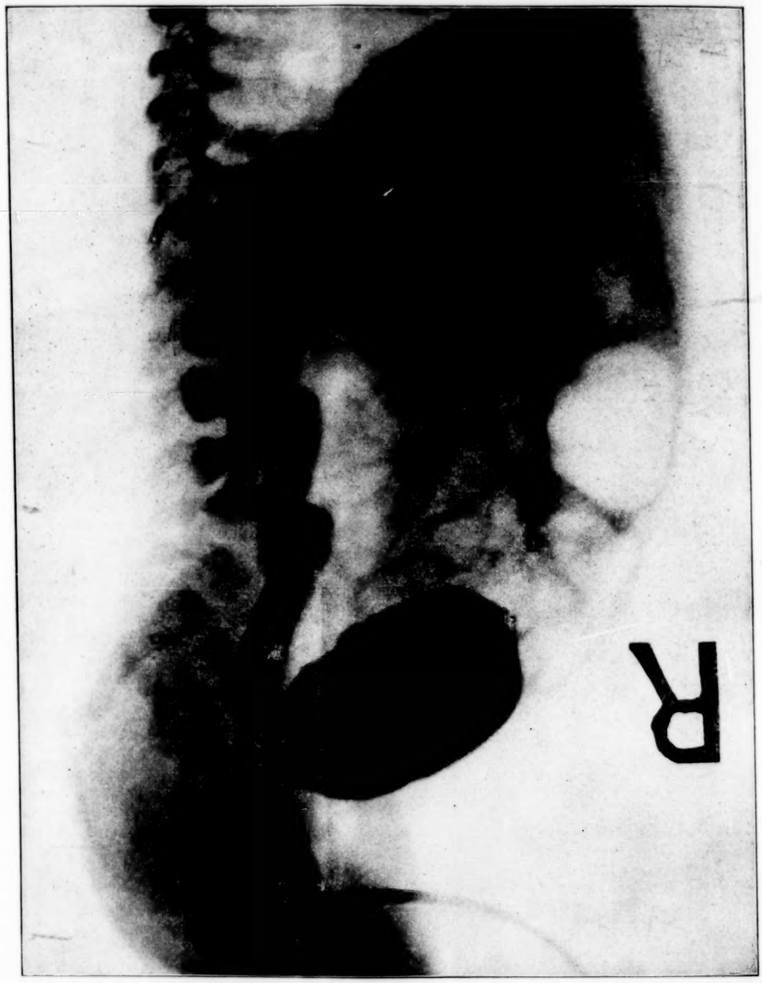
Occlusion of the vesical orifice has occurred from different causes in three cases. In one the position of the orifice was ectopic. A blind pouch represented the normal position of the internal uretheral opening. The ectopic orifice was situated on the trigone about one half inch below the blind pouch and was connected with the deep urethra by a tunnel beneath the mucous membrane. As the bladder distended, the thin roof of mucous membrane was flattened against the floor of the tunnel, obliterating the lumen. In another instance a transverse bar was found at the posterior margin of the vesical orifice. The mucous membrane was edematous and formed a ridge which acted as a flap across the opening. A third type of obstruction was produced by a large cystic dilatation at the orifice of a supernumary ureter that dissected downward beneath the trigone and occluded the vesical orifice. Cases of congenital diverticula have been reported that have occasioned a similar occlusion of the vesical outlet and urinary retention. Diverticulum in childhood however is very rare, no cases having been observed in our clinic and only about thirty are found reported in the literature.



OBSTRUCTION IN POSTERIOR URETHRA FROM VALVES

No. J. M.—Male—7 months. July 20, 1925. Difficulty in urination and vesical distension. General condition very poor. Cystogram shows sacculations of bladder and left ureteral reflux with a dilated ureter and hydronephrotic kidney. Posterior urethra below vesical orifice dilated, suggesting obstruction from valves. Resection of valves contra-indicated by poor general condition. Improvement under bladder drainage and urethral dilatation.

Anomalies of the kidney and ureter are more



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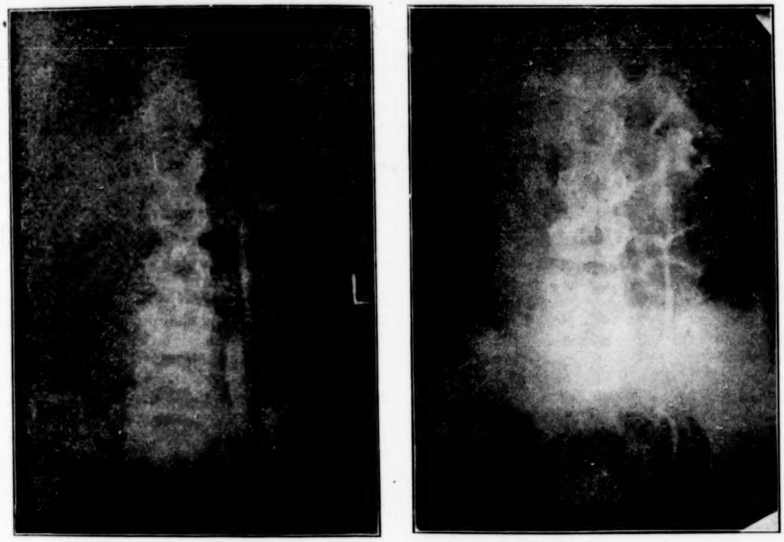
prone to develop pathology than the normal organs. In its early development the renal anlage lies at the level of the second sacral vertebra and from there gradually migrates upward to its normal position opposite the second lumbar, partial rotation occurring during its ascent. The permanent renal circulation does not become established until after ascent has been accomplished. An ectopic kidney therefore is unrotated, its hilum anterior and the circulation is aberrant from an anomalous artery usually arising from the aorta near its bifurcation or from the iliac. Consequently the kidney is fixed in its position by its short pedicle and may lie in the hollow of the sacrum, at the promentory or in the iliac fossa. Concomitant abnormalities of the urinary tract frequently co-exist, and the other kidney may be absent or atrophic. The non-rotation of the kidney combined with the short pedicle and anomalous circulation, are conducive to urinary stasis and ultimate pyelonephritis. Similar conditions are present with fused and horse-shoe kidney.

Ureteral ectopia is brought about by the failure of the ureter anlage to detach itself from the downward growing Wollfian duct. The ureter may be implanted in some abnormal position in the bladder, or it may open along the course of the deep urethra, the vagina or rectum. It occurs more commonly in females than in males. An example of pyuria from this cause was seen in a girl baby of sixteen months. For two months a thick purulent discharge had been noted following urination. There were no urinary symptoms. Douches had been used without improvement. Clear urine was obtained on catheterization of the bladder. The bladder was normal but endoscopy revealed an opening on the right side of the urethra external to the sphincter, from which pus could be expressed on pressure over the ureter or kidney region. At operation an enlarged pyonephrotic kidney was found, the pelvis and ureter were dilated and thickened, and nephrectomy was done.



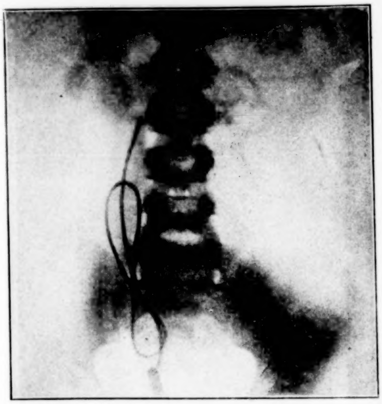
STASIS FROM URETERO-PELVIC REDUPLICATION

No. G. S.—Female—12 years. July 2, 1925. Has been treated medically for chronic pyelitis with acute exacerbations for eight years. With acute attacks, pain referred to both lumbar regions, but greater discomfort is on left. Cystoscopy and ureteral catheterization revealed a duplication of the ureters and pelves on the left with dilatation of the lower pelvis and ureter. Urinary specimens from each ureter showed colon infection in all three specimens.

Pyuria is frequently associated with urinary stasis induced by pressure from without on the ureter. Accessory renal vessels to the lower pole and reduplication of the pelves and ureter, are the usual primary causes. The accessory vessel may be either artery or vein and arises from the aorta or vena cava and crosses the ureter at right angles near the uretero-pelvic junction. A certain amount of stasis may be persistently present, but even a slight degree of mobility of the kidney will permit angulation and complete obstruction. With reduplication of the ureter and pelvis, an anomalous circulation is frequently present. In this condition also mobility of the kidney will tend to angulate the ureters where they cross or where the anomalous vessel crosses the ureter. The symptoms are those of an acute infected hydronephrosis occurring intermittently during the course of a chronic pyuria. There is pain, fever, vomiting and often tumor and a diminution of the urinary output. During this stage the sediment may show less pus than usual. When the obstruction is overcome, allowing the pelvis of the kidney to discharge its infected contents, there is a shower of pus in the urine and the attack subsides. Early in the course of such attacks of intermittent hydronephrosis, the elasticity of the pelvis is sufficient to bring it back to normal and the uretero-pyelogram will show no abnormality save perhaps for a delayed emptying time. Later as the attacks recur the pelvis becomes over-stretched and the typical picture of hydronephrosis is found with dilated pelvis and calices.

Urinary stasis is a marked feature of the lesion to which has been given the name megaloureter or idiopathic dilatation of the ureter. As in stasis from other causes, infection usually follows sooner or later, but pyuria is not invariably present.

The cause of the dilatation is unsettled, although numerous explanatory theories have been offered. Most generally accepted is the view that it is a congenital anomaly similar to megalocolon. Microscopical study of sections of the ureter however, has shown the thickening of the wall to be due to fibrosis and inflammatory infiltration and with little increase of the muscular elements, which is a salient feature of the histological appearances of megalocolon. The gross pathological changes in the urinary tract are similar to those seen in cases in which an obstructive lesion of the deep urethra has been proved. Several cases have come under observation where at first sight no mechanical obstruction was found. The tentative diagnosis of megaloureter was later disproved, when upon more careful investigation an obstruction in the posterior urethra was disclosed. The necessity of a most painstaking search for an urethral obstruction should be emphasized, as it seems probable that many of the cases previously classed as megaloureter may have had an obscure obstructive lesion below the vesical orifice.



MEGALOURETER

No. 41999—Female—Age 9 years. Sepetmber 12, 1921. Intestinal disturbance five years ago. Blood and mucus in stools. Sudden onset of right abdominal pain three days ago. Vomiting and fever. Referred to hospital for acute appendicitis. Large amount of pus found in urine. Costo-vertebral tenderness on right. Cystoscopy September 23, 1921. Bilateral infected hydronephrosis and hydroureter. No obstructive lesion demonstrable. Therefore classed as megaloureter, though at the present time a more careful search would have been made to disclose an obstruction.

Infection accompanying urinary stasis and back pressure will rapidly lead to impairment of kidney function. Local measures such as pelvic lavage will rarely clear up the infection. Even should such methods be successful, recurrence will surely follow and the danger of renal back pressure is not eliminated. Where an obstructive lesion can be demonstrated operative measures to establish a free urinary outflow should be undertaken at the earliest possible moment. The operative procedure indicated will depend on the degree of destruction of the kidney and the location of the obstruction. The important point is to establish free drainage, for it is a well recognized fact that in the presence of a free outflow, the kidney can sustain a pyelonephritis over a long period of time without any appreciable diminution of function, whereas in the presence of stasis and back pressure the destruction is rapid.

SUMMARY

Pyuria is a menace to renal integrity and eventually to health and life.

Where medical treatment is unavailing and focal infection has been ruled out, persistent or recurrent pyuria demands urological investigation.

Cystoscopic examination with ureteral catheterization can be performed in childhood and usually in infancy without undue risk.

Faulty enervation, tuberculosis, calculus and urinary stasis are underlying causes of chronic pyuria.

Stasis may be the result of intrinsic lesions of the urinary tract or produced by pressure on the tract from without. Such lesions are usually of congenital origin.

Obstruction to the urinary outflow is most frequently encountered at the uretero-pelvic junction, the vesical insertion of the ureter or in the deep urethra.

Medical treatment and local measures will fail to eradicate the infection in the presence of urinary stasis.

To prevent renal destruction, surgical means should be employed at the earliest possible moment to remove the obstruction and eliminate stasis.

DISCUSSION

DR. WILLIAM C. QUINBY, Boston: I am sure that you will join me in complimenting Dr. Mixter highly on his brilliant presentation of this subject. His entire communication calls attention to the great need of the early investigation by cystoscopic and X-ray methods of all babies and infants showing pyuria. He has remarked quite properly that such examination should be made if the pyuria does not clear up under general medical measures in a reasonable time. I should like to define this time as certainly no longer than a year, or even a shorter period if the condition is present in the form of repeated attacks. Certainly if there be some congenital abnormality present, of which you have seen examples, it is useless to expect to control the infection by general measures; and the sooner we learn of the existence of such a condition the sooner may appropriate measures be adopted for its removal.

On the other hand both Dr. Mixter and I have seen cases in which general measures without detailed examination, have been persisted in for periods of time much longer than a year. All these slides which you have seen show graphically the great crippling of the urinary passages as represented by dilatation of the pelvis and ureters which follows unrecognized infection and obstruction after it has existed for long periods of time. But I would call your attention to the fact that the more strikingly abnormal the pyelogram appears the worse is the prognosis for the patient.

I wish, therefore, to plead for the early investigation of all cases of pyuria in children and their subsequent surgical treatment wherever possible before extensive pathological changes have taken place.

This work is an apt illustration of the increasing value of the very detailed investigation of every patient; and this applies not only to pediatrics but also to all other branches of medicine. Take for instance the case of pyuria in a child which does respond in a short time to general medical measures and which thus does not need a cystoscopic examination. The microscope no longer shows pus cells and the youngster feels well; but in my opinion if we do our whole duty to this patient we will not rest content here but will persist till the urine is demonstrated to remain sterile on culture. The colon bacillus is a persistent organism and often lies dormant only to take on increase in virulence at a later period in the form of another recurrent attack. We should, therefore, insist on a sterile urine as well as one normal by microscope before we consider the baby cured

Dr. Mixter has also called attention to the fact that since most renal infections are secondary to some other and distant focus in the body a search of the whole child for such a focus should never be omitted.

Renal tuberculosis is another cause of pyuria which should always be kept in mind. To be sure, in children the tubercle bacillus is usually seen as a general miliary involvement of both kidneys and in this form is not amenable to surgery. But more frequently than believed heretofore, the unilateral caseous type of kidney involvement so common in the adult is seen in the child as well. I have seen several cases of this type respond very gratifyingly to nephrectomy.

I would like to ask Dr. Mixter one question. Have you tabulated the length of time during which the patient had pyuria before coming into your hands? I should like to know this very much, because I think that on an earlier diagnosis we must all of us lay stress.

DR. MIXTER: I have not tabulated it.

Were there any less than a year?

DR. MIXTER: No, none less than a year.

DR. JAMES A. SEAMAN, Springfield: Mr. Chairman and members of this section, I really believe the section is to be congratulated upon its choice of so timely a subject and also upon its choice of Dr. Mixter to present it. To the pediatrist and the internist this subject should have a particularly fascinating appeal. There has been an increasing interest shown in the urological problems of children by urologists, whose attention has been confined more or less to the adults in the past. Today, such men as Mixter, Lowsley, Young, Hyman, Beer, Hinman and Kretchmer and a few others have contributed most of the little that we have upon urological problems in children. One cannot help but feel that these little creatures, from the urological standpoint, probably have been the most neglected patients we have seen. But today the pediatrist and the internist are bringing these cases to the urologist for intensive study; and not infrequently with very gratifying results. When one remembers that practically all of the conditions that occur in the kidneys and ureters in the adults can and do occur in the children; and that nearly all of the conditions that occur below these organs in the adult also occur in the child, the problem of early investigation seems easier. Dr. Quinby mentioned a year as the longest possible date to wait before bringing these patients to the complete investigation. One wonders whether this would not be too long a period. Personally, were it my child I should say two to three months. Dr. Mixter has said that many of these cases that he presented here today have gone for long periods of time, over a year, before they came under his observation. I am quite sure that you will agree with me, that no amount of urinary antisepsis is going to cure any of these cases presented here this morning; therefore, does it not seem to be more prudent to face this surgical problem in the child at the earliest possible date? The very evident fact stands out in all these plates, that obstruction and stasis are the basic things behind all these infections, and other conditions not remediable until the obstruction is done away with, whether the obstruction is in the urethra or at the vesicle neck or in the lower end of the ureters or some other portion of the ureter higher up,—infection will persist just as long as stasis is permitted. It is therefore very obvious that the essential problem is one of determining where this obstruction is and what it is and at the earliest possible date.

The precisions in diagnosis which a careful urological investigation offers in most of these cases if not all, is the one great argument in favor of early examinations. The importance of it cannot be questioned. The cystoscope in the infant is no longer a formidable affair, something heroic, even terrible. It is amazing with what facility and little reaction cystoscopic investigation is withstood by these young patients. One seldom, if ever, gives a general anaesthesia to a patient over seven years of age and in fact many of them stand the examination much better than some adults. Our youngest patient was four months old. To be sure, once in a while one has to do an external meatotomy or even dilate the urethra in the young boy but very seldom in the young girl. And because this investigation is so easily done in girls and because the largest incidence of these urological problems is in girls, one readily appreciates the great number of these little patients who are readily amenable to these diagnostic methods of modern urology. It is pleasing to see these methods called upon more and more, and I believe the pediatrist, internist, and clinician when they understand the availability and the simplicity of these important diagnostic methods, will call upon them more often and earlier and give their intractable cases of pyuria the advantages of observation of the bladder with functional tests of the kidneys, the laboratory examination of the collective specimens of both kidneys, cultures, and the urographic study of the injected kidney. I congratulate Dr. Mixter on his splendid presentation of this paper. He has made a great step forward by calling attention to this problem.

Dr. John Lovett Morse, Boston: Dr. Mixter's paper makes me realize how many sins of omission I have been responsible for in the past. I do not feel very badly about it, however, because times have so changed within the last few years. It wasn't so many years ago when I was criticised very severely at a meeting of the American Pediatric Society because I had catheterized a number of babies. I do not know what would have been said at that time if I had cystoscoped them.

I was interested in what Dr. Quinby said as to how long to let a child go with pyuria without an investigation. It seems to me that he is very conservative in putting it at a year. I should move it back to six months, perhaps even to three months. I can remember, however, children who had intermittent pyuria for four or five years and have been well now for a dozen or fifteen years and are healthy young men and women.

I was also interested in what Dr. Quinby said about not being satisfied with the disappearance of pus from the urine. In this connection it is well to remember that bacteriuria without any pus can cause the same set of symptoms that are present in pyuria. While this is true, nevertheless, bacteriuria may persist for years without doing any material harm. I know of one case in which it persisted for fifty years.

Unfortunately, I did not hear the first of Dr. Mixter's paper. I want to emphasize, however, the importance of the "cord bladder" as a cause of pyuria. In this condition the bladder is never completely emptied because of some abnormality of the nervous system, which should always be looked for in cases of pyuria of long duration.

I wish to ask Dr. Mixter one question, that is, how early he is willing to undertake the investigation of a girl baby?

Dr. A. C. Eastman, Springfield, asked if Dr. Mixter, from the history and the symptoms of his cases, had come upon those surgical cases that clear up quickly, or must we be dependent on returning symptoms and repeated attacks for indications for surgery.

Dr. H. C. Tooker, Springfield, inquired as to hematuria and pus in the urine. He had had two cases and wondered whether, if neglected, they would become continued cases of pyuria.

Dr. W. E. Ladd, Boston, presented some lantern slides.

Discussion closed by **Dr. Mixter**: I think the question of the duration of symptoms before urological investigation is of the utmost importance and I don't believe you can make a hard and fast rule, but I feel with Dr. Morse it is better to cut the time down because if there is marked stasis and infection we are getting to a point where renal destruction will ensue.

The colon bacillus is usually the infecting organism in cases of pyuria and in a certain number of cases if stasis could be relieved, you would still have difficulty in eradicating the infection, but I believe if the obstruction is relieved, infection is not nearly so stubborn as in the presence of stasis.

In answer to Dr. Ladd, in regard to the treatment. I have purposely not dwelt on operative treatment of these cases, because each case has to be treated according to the location of the obstruction and cause of the infection and there is no fixed rule. The object, is, of course, to establish thorough drainage and where the kidney is not destroyed to save it. In regard to hematuria, I have seen it in several cases of urethral obstruction coming shortly before or with the onset of pyuria. Also with ureteral obstruction, we are apt to have microscopic blood in company with pyuria.

As to the age at which cystoscopy may be done. I believe that can usually be done at any age and it should be attempted in infant boys of a few weeks of age and can generally be done with a No. 12 French Double Catheterizing instrument, which a boy of that age will accommodate. Of course, in the female urethra, a cystoscope of that size can be very readily accommodated.

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DIPHTHERIA PREVENTION*

BY BENJAMIN WHITE, PH.D.

Diphtheria affords a good example of the general public and professional lag in taking advantage of the results of medical research. Laboratory and clinical investigations have yielded a remedy for curing diphtheria, and means for determining susceptibility to it and for preventing it. The story is singularly complete: only one chapter, the final one, remains to be written and that is on the practical extinction of the disease.

With every agent at hand for the control of diphtheria, one might reasonably ask why we continue to tolerate its presence, and also why the public and the medical profession are so backward in availing themselves of the proffered relief from this source of sickness and death. To answer these questions let us take stock of the situation.

If we leave out of consideration the two years 1924 and 1925 it is apparent that in the last twenty-five years we have done little to control endemic diphtheria. The morbidity and mortality rates rise and fall in different years, and there has been a general downward trend, with some slight improvement in the fatality rate. Yet this disease is still one of the principal causes of death among children, and with its four hundred to six hundred deaths in this state every year it deserves far more attention and action from physicians and public health officials than it has received.

We continue to have diphtheria in this state for several reasons. Just as Carey[1] found in 1919, we can still trace nearly one-third of the deaths to the delay in calling medical aid. Many parents are unaware of the possible seriousness of their children's sore throats and consequently physicians see many patients too late to be of real aid. Some deaths are due to a tardy or wrong diagnosis, and some to the physician's failure to administer antitoxin early enough, and, but less frequently, to give enough antitoxin. Then there are always a few prejudiced persons who refuse to be given antitoxin or to have it given to their children.

Possible remedies for these conditions are, of course, the education of the public in the ways of diphtheria, and the further encouragement of physicians to give antitoxin immediately in all suspicious cases. So far, the most forceful teacher of the public has been diphtheria itself, but the teaching often comes too late and the lesson is generally forgotten. With the newer teaching in our medical schools, mistakes in diagnosis should become increasingly rare and antitoxin will be used more frequently and more promptly.

Far better than these remedies, however, is the practice of prevention by the use of toxin-antitoxin. This may seem a trite remark, but the need of its repetition and emphasis is as great now as it was when Carey[1], Garland[2], Ceconi[3] and others put it in the form of a recommendation, a charge or a plea.

Even at the risk of tiresome repetition let it once again be stated that diphtheria can and should be prevented, and it lies almost wholly with the members of the medical profession whether or not our diphtheria rates fall.

The means to this end is the active immunization not only of children now of school age but the similar protection of children under that age. Two somewhat different problems are presented to the public health official if he is to aid physicians in any extensive immunization of these two groups, but in private practice the problem is a single and a simple one.

The agents are the Schick test and toxin-antitoxin mixture. They were first used in this state by Lilly[4] of Shirley, then by Linenthal and Rubin[5] of Boston, and from those beginnings the practice spread until a very considerable number of children have been tested for susceptibility and a large number of susceptibles have been immunized. Since 1915 about 25,000 Schick outfits (each outfit is sufficient for approximately 50 tests) and nearly 850,000 single doses of toxin-antitoxin have been prepared and distributed by the State Department of Public Health. Large as the figures may seem at first glance, they are small when compared with the number of susceptible children in the state, and it must be plain that they represent too small a number of immunizations to exert any mass effect on our diphtheria rates. If we are to appraise the results following the use of this material we must turn to specific instances in private practice, in schools and other institutions, and in separate communities.

There is a constantly growing number of physicians who, in their private practice, feel that their full duty to the children in their care would not be performed if they did not succeed in protecting them against diphtheria. They give this immunizing treatment to all children six months of age or over, and so successful have they been in establishing a diphtheria-free practice that it would now seem that any physician who failed to exhaust every effort to persuade parents to have their children similarly protected may rightly be blamed for any cases of diphtheria occurring in the non-immunized children in his charge.

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*From the Antitoxin and Vaccine Laboratory, Department of Public Health, Commonwealth of Massachusetts.

The efficacy of active immunization has repeatedly been shown by physicians' experiences in which one or more unprotected children in a family or group of immunized children have been the only victims, when all were exposed to diphtheria.

The safety provided by toxin-antitoxin immunization is perhaps best illustrated by the case of persons directly and constantly exposed to diphtheria infection. Previous to its practice in isolation hospitals it was expected that some of the nurses would contract this disease and it was a rare year when this expectation was not fulfilled. Now, in those hospitals where only Schick negative nurses are permitted to attend diphtheria cases and where the susceptible nurses are properly immunized, one more risk has been eliminated. Some hospitals wisely include their whole personnel under this provision, and thus exclude diphtheria from their hospital family. With successful experiences such as that of the Massachusetts Homeopathic Hospital before us it would seem inexcusable to let untested or susceptible nurses or other hospital attendants enter contagious disease wards, to care for diphtheria patients, or possibly to bring diphtheria into the institution.

School and institutional experiences, because of the larger number of individuals concerned, show that it is a simple matter to convert a partially susceptible school or institution population into a completely immune group and to do away for all time with the bugbear of diphtheria outbreaks. In large schools, such as the Wrentham State School and the Walter E. Fernald State School for the feeble-minded, where Schick testing and toxin-antitoxin immunization are routinely carried out, the development of a case of diphtheria in a new pupil or in a member of the service staff causes no apprehension because the infection can not and does not spread to the other pupils.

A report from Doctor Arey of the Hospital Cottages for Children at Baldwinville is an example of such group immunization and is all the more impressive because this institution cares for weak and delicate children. Their use of the Schick test and toxin-antitoxin immunization dates from February, 1918, following an epidemic of diphtheria. Doctor Arey concludes, "We have had no cases of diphtheria since the immunization method," and, ". . . the end results of treating with toxin-antitoxin as an immunizing agent against diphtheria are one hundred per cent." Why, then, with such an example before us, should we allow diphtheria in any institution for the care of children? The responsibility for diphtheria in children under prolonged institutional care rests squarely with administrative heads of such institutions.

That which has been accomplished with children, families, hospitals, school and other institutional populations may be and has been accomplished for a larger community.

Northampton has the distinction of being one of the first cities to appreciate and apply the means for protecting its children against diphtheria. The disease had been endemic there for a number of years. In 1920, with a population of about twenty-two thousand, there were 62 cases and six deaths, while in 1921 there were 59 cases and eight deaths. In that year the health officials, the school and other physicians combined and began immunizing both the school children and many youngsters of pre-school age. They received consent from parents, and a goodly proportion of the child population was immunized. In 1922 the cases fell to 26, while the deaths were eight. The returns for 1923 showed a significant drop in the number of cases. There were only four cases and one death, and 1924 followed with five cases and one death, while in 1925 seven cases occurred with no deaths. Not a case of the disease occurred in any child who had received the full series of three injections of toxin-antitoxin and the cases were in adults and in very young children who had not been brought to the clinic. This fortunate situation will, of course, endure only so long as a continuing effort is made to immunize each year's new births as well as those children who are not now protected.

It is doubtful if diphtheria can be entirely eliminated. There will probably always be some folks who will decline either for themselves or their children the protection offered, and there will always be newcomers or transients from states or countries where active immunization is not generally done. Northampton, however, has demonstrated that diphtheria can be kept away from its children, and what has been brought about by Northampton can be accomplished by any other community, not excepting the entire Commonwealth.

The experience gained during the past ten years in laboratories and in clinics has shown us how to improve Schick outfits and the toxin-antitoxin mixture, and how to simplify and facilitate the immunization of large groups. The old 3 L plus toxin-antitoxin mixture has been supplanted by the 1/10th L plus mixture, which is an efficient immunizing agent without some of the undesirable features of the former mixture. It has also been found advisable to omit the preliminary Schick test with children under ten years of age, because the majority of children below this age are susceptible. The importance of the Schick test six months after the toxin-antitoxin injections is as great now as it ever was, and it can not be too strongly emphasized. Some confusion was created by an article by Kellogg[6] questioning the accuracy of this test, but it may suffice to say that his claims are not sound, and any immunization treatments that do not include a final Schick test are incomplete.

The details of the present practice of diphtheria prevention by active immunization may be described as follows:

1. All children between the ages of 6 months and 10 years should be given three injections of the full dose (1 c.c.) of diphtheria toxin-antitoxin mixture one week apart. Larger doses should never be given because the strength of the product is adjusted to this dose.

2. School children over ten years of age should be given the Schick test, and if susceptible should be given a similar series of toxin-antitoxin injections. If the child shows a combined reaction to the Schick test, the dose should be lessened, beginning with 0.1 c.c., then at weekly intervals, 0.25, 0.5, 1 c.c. and 1 c.c.

3. All adults in schools, colleges, hospitals and other institutions should have Schick tests performed and the results recorded, and if their work or activities bring them in contact with cases of diphtheria, or if there is any likelihood of such exposure, they should be actively immunized as in 2.

4. *All persons receiving a series of toxin-antitoxin injections should be tested by the Schick test six months after the last injection to determine if the treatment has rendered them immune.* With three injections of one cubic centimeter each of diphtheria toxin-antitoxin mixture one week apart, from 85 to 95 per cent. of those treated should be found negative to the Schick test six months after the last injection of toxin-antitoxin. The percentage will vary with the group tested. All those who give a positive reaction to this control test should be given a further course of immunizing injections similar to the first course, and again retested at the end of six months.

5. In doing Schick tests some simple precautions are necessary. Fresh Schick outfits should be used and they should be kept in an ice-cold place from the time of their receipt until they are used. The dilutions must be carefully made, and the diluted toxin should be replaced by a fresh dilution if it has stood for more than four hours. The injection of the diluted test toxin should be made into the outermost layers of the skin and the full 1/10th c.c. should be injected. The tests should be read on the fourth or fifth day, and any reaction (excepting of course the pseudoreaction) should be considered as positive.

6. The 1/10th L plus toxin-antitoxin mixture is still the most satisfactory immunizing preparation. It should be practically colorless and perfectly clear and be used within the expiration date stamped on the label. The amount injected should never exceed one cubic centimeter, and the interval between injections of the full dose should not be less than one week. The injections may be made at longer intervals if necessary.

7. Any alleged cases of diphtheria occurring in individuals originally Schick negative or negative after toxin-antitoxin treatment should be thoroughly investigated and always reported to the State Department of Public Health.

The State Department of Public Health supplies both the Schick outfits and the toxin-antitoxin mixture (the outfits sufficient for about 50 tests each, and the toxin-antitoxin mixture in 1 c.c. ampoules and 20 c.c. vials) free of charge, and they can be obtained from all local boards of health or their distributing agents, as well as from the distributing office of the State Department, Room 527, State House.

DISCUSSION

No one should be misled into thinking that the remarkable decline of diphtheria in the past two years and the present year has been brought about entirely by the active immunization work that has been done. Such immunizations have unquestionably prevented many cases and deaths not only in the persons treated but indirectly in others to whom the disease might have been spread from the immunized individuals had the latter not been so protected. Diphtheria has a way of remitting, sometimes for a year (as in 1898 and in 1912) or for several years, but it usually makes up for its absence by returning with renewed vigor. The present, therefore, is no time to boast of our past efforts or to become complacent about the situation. As a matter of fact our efforts, with a few exceptions, have fallen short of what they should have been, and our present temporary and comparative relief from diphtheria is probably a curious dispensation of nature.

It behooves us then to renew and extend the effort to bring this disease under control. Such is the present aim of your State Department of Public Health. It is planned to give to the medical profession a supporting service, by continuing to supply Schick outfits and toxin-antitoxin free of charge, by informing the public, school masters and officials, school and other institution heads, and health officers of their ability to prevent the disease. Aid will be given to the physician through notices to parents that their physicians can protect their children. Aid will also be given in organizing clinics for school children, and clinics for the younger children.

The effort will be, not to stage a temporary demonstration, but to show the public the protection that they can secure for their children and to create continuing agencies for insuring the immunization of each year's new born. Local and sporadic efforts or skyrocket campaigns will accomplish little, and at the most we can expect no immediately impressive betterment in the diphtheria situation, but with physicians immunizing all children under their care, with a reduction of the present susceptibles in schools and institutions and with the immunization of the new generations of children, diphtheria will cease to be an important cause of death.

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DISCUSSION

DR. W. O. HEWITT, Attleborough: In the limited time afforded for discussion, I shall restrict my remarks to a consideration of "the measures that may best be adopted especially by the smaller cities and towns toward putting on and maintaining effective campaigns for diphtheria prevention."

Efforts to control diphtheria in the larger centers of population have been very successful, and there seems now to be a definite need to furnish more adequate protection to the children in the smaller cities and towns.

In the very first place comes the important matter of the selection of a person or persons qualified to have charge of the work. Such a person in any town should be a physician preferably connected with either the local health department, the medical inspection of schools, or the medical representative of a private health agency which may have elected to carry on this important activity. Such a person must from the outset possess real enthusiasm, and confidence in the campaign against diphtheria and he must be prepared to meet opposition which is certain to be encountered.

Each locality must map out its own plans. It is no easy task to build up and maintain a new clinic in diphtheria prevention, and to carry on hand in hand with this a determined program of education and publicity. The ideal is not immediately possible of accomplishment in the smaller places with their lack of adequate appropriations. Systematic action must however be started, and continued year after year. It must be made plain that the educational program cannot be completed in one year. There must be no let up once the work is started.

The very first concern of the person who would inaugurate a diphtheria prevention campaign in his city is to secure the endorsement and co-operation of all the physicians. It is not desirable for the doctors to introduce or to conduct the program, but they should do much of the work of immunization. There will be no satisfactory results unless the doctors are in accord and urge the use of toxin-antitoxin.

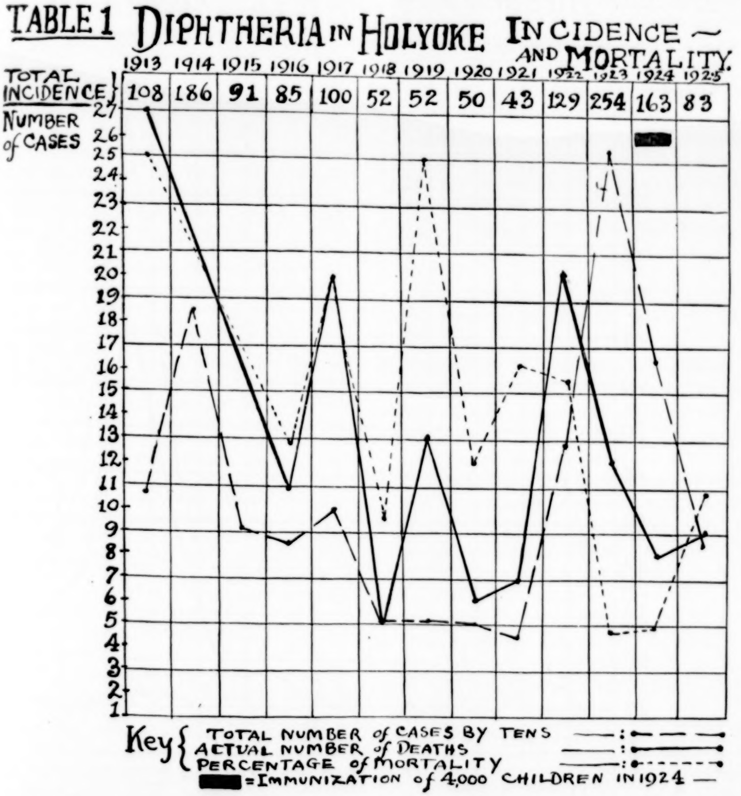
The important matter of publicity must be in the hands of the local public health officials. Unofficial health agencies may be counted upon to help in this special work. The large insurance companies will furnish assistance by supplying appropriate literature.

I shall now submit brief data of the efforts used in a city of 20,000 population where immunization has been carried on during the last 3 years with some degree of success. No appropriation was available at the start, and very small funds have been spent since. All that is needed is a little enthusiasm and a rather tough exterior, impervious to opposition. Thus immunization may be carried out in any town.

THE PROGRAM

1. Addresses to the local physicians by one or more authorities on diphtheria prevention.
2. Arousing of local interest in diphtheria prevention by letters from the Health Officer to:
   - A. The District Nursing Association, Child Welfare Society, Associated Charities, School Committee.
   - B. Public meeting. Prominent speakers. Demonstration of reading of school children Schicked four days previously. Volunteers from audience after talk.
   - C. Newspaper co-operation — usually available free if you write the articles.
   - D. Public endorsement of diphtheria prevention work by: Mayor, school physician, doctors' club, all local physicians. A card may be inserted in the local paper, signed by physicians endorsing the idea.
   - E. Opening of weekly clinic (if not all the year, clinic should be open in fall and early winter).
   - F. Paid ads in local newspaper to stimulate attendance at clinic.
   - G. Clinics in the schools. Co-operation with superintendent and school physician.
   - H. Annual distribution of literature through the schools.
   - I. Health Show with attractive exhibits. Another opportunity for demonstration clinic in charge of officials from the State Department of Public Health, with addresses by officials and the distribution of literature, most of which is obtained free from insurance companies.
   - J. Distribution of biological supplies to the physicians.
   - K. Complete records:
     - Consent slips.
     - Records: Name, address, date, date of test, result, date of injections with lot numbers, date of re-Schick, with results, certificates given.
     - Certificates: Natural immunity. Protective treatment.
     - Return cards: (Six months to return for re-Schick).

In conclusion let us remember that diphtheria continues to kill, that it is the duty of physicians and health workers to utilize those effective means now at our disposal to prevent, and that failure in the future to control diphtheria will indicate an attitude of indifference on the part of those responsible for this unnecessary cause of severe illness and death.



E. P. Bagg, Jr., Holyoke: In order to supplement Dr. White's paper a study was made of the statistics for diphtheria as recorded by the Department of Health of Holyoke from 1913 to the present year. Well over thirteen hundred cases occurred during this period. This is shown graphically in Table 1.

The incidence rose to epidemic proportions twice in this series of years—moderately in 1914 (186 cases), but to a marked degree in 1922-23 and 24. The large number of 254 cases in 1923 was somewhat augmented by a systematic survey of school children in search of carriers. However, 138 of this total occurred in children from 2 to 5 years of age, that is, below the school age and thus out of reach of the survey. They are also out of reach of immunization through the schools.

A comparative study of age groups clearly corroborates previous experience, in that the greatest number fall in the pre-school age, 2-5 years (617 cases). By adding to this the number in the school age, 6-11 years, the total of 1075 out of 1329 is accounted for. This leaves 104 adults (18-70 years) and only 78 aged 1 year or less. The ages of 75 could not be traced. (See Table 2.)

In general, the mortality curve has fallen synchronously with that of incidence from the distressing height of 27 out of 108 (25%) cases in 1913 to 6 out of 50 (12%) in 1920. One might readily infer that improved observation and treatment had begun to tell. However, the deaths again rose to 20 out of 129 in 1922 (15.5%). (See Table 1.)

During 1923 immunization came into use at a most opportune time, with the result that only 12 died of 254 cases (4.7%). Early in 1924 the Health Department inaugurated a campaign in the schools which with those privately inoculated secured the immunization of approximately four thousand children.

The deaths dropped from 12 to 8, relatively the same percentage (4.9%). Unfortunately this effective measure was not followed out in 1925. While the cases numbered only 83, 9 of these died, sending the percentage of mortality back to 10.8%.

Clearer proof of the efficacy of immunization against diphtheria would be difficult to secure.

I am glad to state that the community is aroused to the dangers of the situation. Three different clinics have already been established for the administration of toxin-antitoxin through the Health Council, and the Health Department is considering ways and means of its establishment as a routine in the schools of Holyoke.

It is fitting at this time to pay a well deserved tribute to Dr. White for the excellence of the toxin-antitoxin prepared under his direction and the service which he and his staff are rendering to the State of Massachusetts.

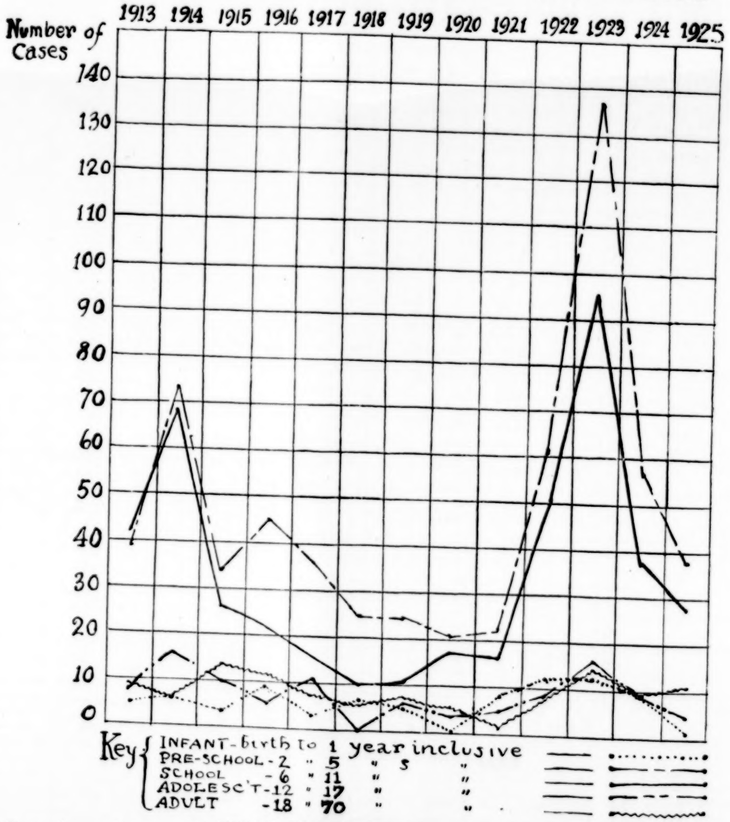


TABLE 2. DIPHTHERIA IN HOLYOKE — AGE GROUPS

Dr. Chereskin, Longmeadow: I have about

660 children under my care—I have heard the gentleman say that children should not be Schicked under ten, am I right?

Dr. White: Yes.

Dr. Chereskin: I have had difficulty, I have had to deal with a lot of Christian Scientists in Longmeadow, however, I Schicked in the last two years over 150 to 175 children and those ran between the ages of six and thirteen and we had some wonderful results. I notice Dr. White has given Northampton all the credit. I think a little ought to come to Longmeadow. I also want to thank Dr. Minor for the co-operation he has given in the Longmeadow School.

Discussion closed by **Dr. White**: I want to thank Dr. Hewitt and Dr. Bagg for so admirably supplementing my very modest and sketchy paper. The diphtheria figures for Holyoke which Dr. Bagg prepared are especially interesting from an epidemiological standpoint. In 1921 I went to Holyoke and Schick tested about one hundred children. Because of the density of population we expected to find practically no positive reactors. When the children were examined four days later, however, practically every child of seven years of age or less was positive. Upon examining the diphtheria figures for Holyoke, we found that in 1914 there had been an epidemic of diphtheria and we concluded that because there had been so little diphtheria since then the children who had been born subsequent to the epidemic had never been exposed to the disease, and, therefore, were susceptible. On the basis of this assumption we predicted that an epidemic might visit Holyoke in the near future and in that epidemic a very large proportion of the cases would occur in children born since 1914. The prophesied epidemic occurred in 1924, and, as predicted, the children of ten years or under made up the vast majority of cases.

Quite aside from the value of the Schick test in showing susceptibility or immunity it has an even greater value from an epidemiological standpoint, and it is to be hoped that wherever feasible its use will be continued.

I did not mean to take away any glory from Longmeadow, in which such thoroughgoing diphtheria prevention work has been carried out. I merely cited Northampton as one of the first cities in the state to realize the value of diphtheria prevention methods.

NEW YORK SURVEYS HOSPITALS AVAILABLE IN CRISES

A survey of the hospital resources of New York city, public and private, to determine what part of them might be pressed into service in case of a serious epidemic has been started by the Committee on Hazards and Emergencies, appointed by Mayor Walker soon after he took office. The committee also is sponsoring an investigation into the causes of epidemic and the best methods of controlling them.

"The work that is now being done by the Department of Health of the City of New York and by the United States Public Health Service is satisfactory and would be adequate to control any outbreak of a pestilential disease, but it is the feeling of this committee that no matter how distant the possibility of an outbreak may be a well-rounded program with a definite organization should be now prepared so that it may be launched at a moment's notice if the need arises. It is for that purpose that the committee has undertaken this study."—*New York Times.*

THE STUDY OF EFFECTS OF CHLORINE GAS AS OBSERVED IN THE WORLD WAR

The Board of Medical Officers appointed by the Director of the United States Veterans' Bureau to study the residual effects of war gas expects to complete its studies of chlorine gassing by the first of the year.

The Board, which held its first meeting March 9, 1926, is composed of Dr. Allen K. Krause, member of the Group of Investigation and Research of the Medical Council of the United States Veterans' Bureau and associate professor of medicine at Johns Hopkins University; Lieutenant-Colonel Harry L. Gilchrist, M. C., U. S. A., chief of Research Division, Chemical Warfare Service, U. S. A., and Dr. Philip B. Matz, chief, Medical Research Sub-division, United States Veterans' Bureau.

Records show that approximately 70,000 men were gas casualties of varying degrees of severity during the war, 1843 of which were from chlorine gas. The War Department has made an investigation of the immediate effects of chlorine gassing in over 800 cases, and the present study by the Veterans' Bureau is expected to develop important information pertaining to the residual effects of this gas.

Upon completion of their investigation of chlorine gassing, the Board will commence a survey of the cases resulting from phosgene, mustard and other gases.

The Massachusetts Medical Society

THE CONTROL OF THE COMMUNICABLE DISEASES PREVALENT IN MASSACHUSETTS*

With a Study of the Mortality Due to Them During the Past Seventy-Five Years

BY EDWARD G. HUBER, M.D.

(Continued from page 590)

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9. GERMAN MEASLES

The history of this disease is not at all definite, for the obvious reason that until comparatively recently many leading clinicians insisted either that there was no such disease, that it was an attenuated measles, or that it was a hybrid of measles and scarlet fever. This confusion has been possible because the disease has no clear cut picture, the symptoms and rash varying somewhat at different times and in different epidemics. However, for the past century there has been a fairly universal belief that rubella is an independent disease.

German measles has been a notifiable disease in Massachusetts since 1914. In each subsequent year except 1917 and 1918 about 500 cases have been reported. In the two excepted years, about 6000 and 9500 cases, respectively, were reported. There is no means of knowing what proportion of actual cases these figures represent. There are so few deaths from it that no mortality statistics are given.

As in measles, climate, altitude, soil, race, sex, and heredity have no influence on incidence. As to age the disease is not common under two years of age or over fifteen; probably three-fourths of all cases occur between these ages. One attack confers immunity. The causative organism is unknown. Epidemics occur in winter and spring generally. The period of incubation is fourteen to twenty-one days.

Intimate contact is necessary for the transmission of the disease. One of its characteristics is that the epidemics are short-lived and that they are commonest in schools, hospitals, and institutions. Sporadic cases of the disease are uncommon. Fomites are not thought to be of much importance unless very recently infected, although Vaughan takes the opposite view and advocates the burning of infected articles which cannot be sterilized. The secretions of the mouth, nose, and throat during the brief pre-eruptive and early eruptive stages are probably the media of transmission of the virus. Infectivity is apparently rapidly lost, so the patient is not contagious more than a few days.

The only good reason advanced for persisting in the wholly unsuccessful past efforts to control this disease is because of the difficulty of distinguishing it at times from scarlet fever. But during an epidemic the characteristics of rubella are distinct. Sporadic cases, being rare, should be treated as scarlet fever, but quarantine in epidemics is without effect, and since the disease is so mild, there is no valid reason for wasting time in trying to control it. Patients should be isolated, largely for their own good, in order to keep them under conditions which will make them less susceptible to the few complications which sometimes occur. If non-immune contacts are to be kept out of school it should only be between the 14th and 20th days after exposure; but this does not seem necessary except when there is a possibility of a mistake having been made in the diagnosis. A far better plan for school prevention measures is to send home all children with acute catarrhal symptoms, after inspecting all of them each morning.

All cases should be reported to the health department. There are at present so few data concerning the disease that we are comparatively ignorant as to whether there are any ultimate deleterious effects or not. Another excellent reason for reporting is the occasional confusion of German measles with scarlet fever and measles.

10. MUMPS

Mumps was first described by Hippocrates but it was not until the second half of the seventeenth century that it again became the subject of writings by medical men. Even then it was not suspected of being an entity. Hamilton seems to have been the first to recognize this, in the latter part of the eighteenth century. A few years later Mangor in Wiborg recognized mumps as an infectious disease. He was probably the first to do so. At about this time there were numerous epidemics in Italy, and the medical men who studied the disease there recorded their observations so well that their work served to teach the remainder of the medical world the nature of the disease.

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Mumps is a very uninteresting disease to the non-military medical man, but as it is a notifiable disease and is quarantined, a short discussion is in order. All that can be said of the etiology is that the cause is probably a filterable virus. The incubation period is equally doubtful, various estimates placing it at 8 to 30 days, average 18. The disease prevails all over the world, and generally in the winter or early spring. Hirsch collected the data on 150 epidemics and found that 129 occurred in the winter and 21 in the summer. Almost all ages and both sexes are susceptible but it is rare under four years of age, and past middle life. The years from 5 to 15 are thought to be those of greatest susceptibility. One attack conveys life immunity ordinarily, but exceptions are known. When the disease is bilateral the second gland is generally involved as the first subsides. This would seem to indicate a slow development of immunity.

So far as is known the disease is transmitted by secretions from mouth and throat. It seems to be highly contagious in the early stages. Nothing being known of the resistance of the organism it is impossible to say how long fomites can retain the living virus. Transmission by eating utensils is in all probability an important factor in spreading the disease in a home, barracks, or institution, and it is in such places that transmission takes place most often. There is considerable coughing during the disease and this of course spreads droplets. Direct contact plays the leading rôle as in other communicable disease. Dogs and cats have been infected, and probably also play their part. Possibly there are carriers; and there must also be missed, atypical, and ambulatory cases to act as foci. Sinclair emphasizes the fact that mumps requires "group massing" for its transmission and that therefore secondary cases are not often seen as a result of school contact or of contact with playmates, but that they are common in the home and in institutions.

However much the civilian medical man may look down on mumps it is an important matter in the miiltary service. There were 213,943 cases in our armies during the World War. During 1918 there were 168,519 cases, a rate of 67 admissions per thousand soldiers per year. This rate was exceeded only by influenza. About 7% of total admissions for disease were mumps. There were 8020 men constantly non-effective because of mumps in 1918. Radin reports 5756 cases in 18,000 men at Camp Wheeler. This was an incidence of 32%. Of the 13,638 admissions to hospital at that camp up to March 1918, 42.2% were mumps. All of the 151 deaths in our army in 1918 ascribed to mumps, had pneumonia as a sequel. Brooks reports that pneumonia was no more frequent in the mumps wards at the Camp Upton Base Hospital than in any others. He states that in his opinion pneumonia had no more relation to mumps than to fractures, gastro-intestinal disorders or any other large group of disease conditions. Williams reports an investigation of 65 reported cases of deaths from mumps. A study of death certificates and of the reporting doctors' replies to letters of inquiry leads him to conclude that mumps is rarely a cause of death, since the diagnoses were almost all questionable.

For economic reasons the disease in individuals past puberty is much more important than in children, owing to the long period of absence from work especially when orchitis is a complication. Quarantine and isolation have had no effect in preventing or checking epidemics. It would therefore seem logical to drop all restrictions in this disease and to concentrate time and money on more important ones. By doing this, the public could be made more willing to coöperate where such help is more necessary. Notification should be continued, in order to afford data for study. Isolation in the home to the extent of making it easy for non-immune adults to avoid becoming infected should be carried out. Isolation and confinement to bed of infected young adults will also reduce the incidence of orchitis and ovaritis. The sterilization after each meal of all dishes used in the house seems essential for the prevention of transmission. The house should be placarded. There seems no valid reason why exposed children should be kept out of school. There is some advantage in having the disease at school age rather than having it later, possibly with orchitis. Before the disease can be prevented a number of unknown factors must be cleared up such as; the exciting cause, the period of incubation, the method of transmission, and methods of determining susceptibility and of producing immunity with vaccine or serum.

11. Chicken Pox

It was not until the ninth century that varicella was distinguished from small pox. Rhazes apparently was the first to do so, and his recognition of the two separate immunities in these diseases was what led to the differentiation. For several hundred years afterward nothing more was written of chicken pox until Vidius' good description of it in 1626. But it was really not until the widespread epidemic of small pox in 1871-1874 that the distinction between the two diseases was clearly drawn and accepted by everyone, although there had been strong proponents of each side of the question during the 250 years after Vidius. As late as the third quarter of the nineteenth century some of the most eminent men of the profession still insisted that varicella was mild small pox.

The disease is prevalent over the entire world and is endemic in practically all cities. It affects equally all races and both sexes. It is most common during the autumn months. The age of greatest susceptibility is four to ten, but younger children may be affected, and adults contract it much more frequently than is thought. Apparently the chief reason why more adults are not infected is because they had the disease in childhood. Vaughan reports that in 1919 in the city of Detroit, 83% of cases reported to the health department were under ten years of age. The length of the period of incubation is conjectural. Various guesses place it from four to thirty days but thirteen to twenty seems closer although the evidence is vague. This disease differs from the other exanthemata in that the rash appears before any symptoms, consequently the time of onset is not at all definite. One attack confers immunity for life but as in other diseases there are exceptions. The virus is unknown. Much has appeared in the literature during the past ten years concerning a possible but not yet proven relation between herpes zoster and varicella. The complications and sequelae of chicken pox are not without danger to life. The commonest ones are secondary infections due to the pyogenic organisms always on the skin, or from uncleanliness and scratching. Other complications are rare and probably do not occur more frequently in children with varicella than in other children, sick or well. In degree of communicability chicken pox is exceeded only by measles but the mode of transmission is unknown. The way it spreads from ward to ward in a hospital is a source of wonder to all concerned. It shares with foot and mouth disease the distinction of being the last disease still mentioned seriously as being transmitted aerially (other than by droplets of sputum). It is transmissible from the moment of onset of the attack. The lesions of skin and mucosa are thought to be the source of infection, and direct contact the most probable mode of spread. The virus seems to be short-lived since fomites do not give evidence of being important. Attempts have been made to inoculate children with varicella but the success was questionable. Wide transmission of the disease is favored by its mildness, for children are generally still in school during the early and presumably very communicable stages. The assumption is that infection is received through the respiratory tract and this aids the aerial transmission theory.

Control measures except keeping the infected child at home, for its own sake, are entirely superfluous at present. As with mumps and German measles, there are no reason why control should be exercised. It is much better to have the disease in childhood, for it might come at a much more inconvenient time during adult life. The patient should be regarded as ill until the crusts are gone and there is no more danger of secondary infection. Protection of weak or debilitated children might be desirable, and then special measures could be taken. In institutions which have many small children it is also generally desirable to check an epidemic. In such cases vaccination has been proposed. Kling's method of applying the contents of vesicles to the abraded skin has not met with great success. Hess and Unger were more successful when they gave intravenous injections of the same material in a small series of cases; difficulties in getting consent for a method which looks formidable to the layman and rather formidable, to say the least, to the medical man, could be foreseen.

Keeping contacts out of school is wholly unnecessary. The period of incubation is unknown but long, and school sessions would be much disrupted with no corresponding gain.

All cases of the disease should be reported, both because of possible confusion with small pox and for purposes of research. On account of the similarity to small pox it has been argued that the disease should be quarantined and isolated as is small pox; but as a matter of fact there is confusion only with the mild type of small pox and since isolation has been a total failure in controlling that disease there is no need of extending unsuccessful control measures to chicken pox.

(To be continued)

MOTOR ACCIDENTS IN ENGLAND AND WALES

THE Registrar-General's *Statistical Review* for England and Wales for 1924 sets forth that deaths due to motor vehicles for 1924 amounted to 2,290, a rate of 77 per million, which is the highest recorded up to that time.

Further analysis seems to indicate that greater safety lies in the use of four-wheel brakes more than any other one factor. This is especially indicated for those deaths occurring among children, for the behavior of a young person is so erratic that a driver is often confronted with unexpected dilemmas.

The suggestion is made that the present-day pleasure motor vehicles will eventually be driven from the roads and the drivers thereof will betake themselves to the air.

INFANTILE PARALYSIS IN SPRINGFIELD

THE daily papers report thirty cases of infantile paralysis in Springfield, Massachusetts. The school authorities have ordered the public schools closed for another week as a prevention of spread of the disease. Most of the cases are reported as occurring among children who have recently returned from vacation visits to other places. The district health officer reports only a few cases in his district outside of Springfield, and is quoted as saying that Worcester, Massachusetts, has a considerable number of cases.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY
RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 12381

CHEST SIGNS AND BRAIN SYMPTOMS: CAUSE?

MEDICAL DEPARTMENT

A Swedish tinsmith of fifty-eight entered January 5 complaining of cough of five days' duration. He was so ill that no past history and family history were obtained except that for six months he had had occasional palpitation and had slept better with four or five pillows, and for three months had had dyspnea on exertion.

He had always been well until two weeks before admission, when he caught cold, began to cough and raise some thick white sputum and to have pain in the right back along the lower ribs on breathing, aggravated by coughing. He felt well and continued at work until five days before admission, when he had a chill, due he thought to gasoline fumes. He had been in bed since that time, feeling feverish. The cough and sputum persisted. The day of admission the sputum was bloody. Since the onset he had had no appetite and had lived chiefly on milk. His bowels had not moved for three days. He had had some dysuria. Since the day after the onset he had taken brown pills and other medicine prescribed by his physician for his heart.

Examination showed a well nourished, sick looking man, dyspneic, sweating and coughing. There was cyanosis and icterus. The lips showed herpes. The teeth were bad. There was pyorrhea. The throat was injected. The epitrochlear glands were palpable. The left chest expanded a little more than the right. Anteriorly the right chest was dull above the fifth rib. There were many râles and increased whispered voice. Posteriorly the right chest showed dullness from the apex down to the midscapula, with harsh breathing, many râles and increased vocal fremitus. The abdomen was somewhat protuberant. The apex impulse of the heart was felt in the fifth space 10 centimeters from midsternum, one centimeter outside the midclavicular line. The left border of dullness was 12 centimeters from midsternum. There was no other enlargement to percussion. The heart was fibrillating, rate 110. The blood pressure was questionable, about 140-160/80. The artery walls were thick, the temporals and brachials tortuous. The extremities, pupils and reflexes were normal. There was no edema. Electrocardiogram showed auricular fibrillation, rate 90, left axis deviation, index +22, slurred R_{II}.

The urine was normal in amount, specific gravity 1.026 to 1.018, the slightest possible trace of albumin at one of three examinations, bile at all, rare leucocytes at all, rare to frequent cellular casts at two, hyalin at all. Blood examination showed 22,700 to 65,800 leucocytes, 92 per cent. polynuclears, 85 per cent. hemoglobin, 5,376,000 reds, smear normal. Van den Bergh tests, direct and indirect, negative. Wassermann moderately positive. Sputum mucoid, bile stained at one of three examinations, dark brown at another, blood questionable at one, dark at another, diplococci and staphylococci at two, short chained streptococci at one, occasional to many leucocytes at all. Sputum showed type IV pneumococcus and questionable type II pneumococcus, atypical.

A portable X-ray plate January 8 showed dullness in the upper half of the right chest obliterating all the lung markings. The lower border was sharply defined and corresponded with the position of the interlobar septum. There was also similar dullness at the left base and an area corresponding with the left lower lobe. The heart shadow was very much increased in size.

The temperature was 99.8° to 103.9°, the pulse 78 to 140, the respiration 19 to 52.

The patient remained in approximately the same condition for the first few days. January 9 the signs in the upper chest had changed. There was flatness over the right upper chest and diminished bronchial breathing and tactile fremitus. The patient was very toxic. The leucocytosis was at its highest, having developed in two days. January 9 a heart consultant found a return to normal rhythm during fever and digitalis administration. January 10 there was a patch of dullness with râles and tactile fremitus present at the right apex posteriorly, at the right base an area of flatness with absent tactile fremitus. Between these patches there was impaired resonance with tactile fremitus present. X-ray showed the area of dullness on the right previously noted increased in density and extending farther toward the base. Unfortunately the extreme base of the lung was obliterated by an artefact. The dullness on the left appeared to be less extensive than at the previous examination. There appeared to be some displacement of the heart to the left. There were several small dense areas of calcification in the extreme left apex. Next day there was fairly normal respiration in this intermediate area. The breath sounds were absent at the right base, where the area of flatness showed no increase. A third X-ray examination confirmed the previous observations. There was a large area of fairly homogeneous dullness involving practically the entire right chest.

A needle was introduced in the third interspace in the anterior axillary line. No fluid was obtained.

January 11 the patient was very ill. He had pain in the left side of the head. The right arm and leg were partially paralyzed. There were pains in both legs. Kernig was positive. The neck was stiff. The jaundice and blood in the sputum persisted. January 13 he died.

DISCUSSION

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

1. We start off with a hunch that this man has a cardiac trouble.

2. He had had no appetite and had lived chiefly on milk presumably because he had fever.

3. It sounds like a pneumonia on top of some cardiac condition. That is all one can guess from the facts of the history.

NOTES ON THE PHYSICAL EXAMINATION

1. We have a rather slangy use of the word "sick" here. In England it means that one is nauseated. We mean that we think the man is seriously ill. We do not mean any particular diagnosis or symptom, but that he is seriously ill. I do not like the phrase, although it is traditional in this hospital. It goes back at least fifty years, but is not an accurate term.

2. Herpes makes us think of pneumonia first, then of malaria and meningitis.

3. "The right chest dull above the fifth rib" means something. We do not know what the breathing showed.

MISS PAINTER: The breathing was roughened in front.

DR. CABOT: That means nothing. That is one of the things we say when we do not know It is like "heart sounds roughened." My impression is that as the trouble was in the upper part of the chest it cannot be fluid, so it is probably solid, i. e. probably pneumonia. Posteriorly the sounds were about the same.

4. There is perhaps a little enlargement of the heart, perhaps not.

5. We cannot measure the blood pressure with a fibrillating heart.

6. There is a small point here which ought to be picked up. The brachial artery ought to be straight. When it is found tortuous it is diseased. The temporal artery ought to be crooked. When it is found so it is not evidence of its being abnormal.

7. There was left axis deviation, that is to say a big left ventricle.

8. This is the sort of urine we usually get with pneumonia, though the bile is a little unusual.

9. We get no evidence from the Van den Bergh test. We get no evidence from a positive Wassermann when there is jaundice.

10. They certainly thought that this patient had pneumonia with a jaundice which complicates pneumonia sometimes, we do not know why.

11. In the X-ray plate of January 9 we see a perfectly continuous shadow, the apex and base a little lighter. On the left side I cannot get the heart shadow. Probably the patient was breathing. On January 11 there is a little air seemingly showing at the bottom. Most of the trouble is in the middle lobe. That certainly would correspond to pneumonia rather than to tuberculosis or to fluid. The January 9 signs in the chest ought to mean fluid, interlobar or encapsulated empyema. Displacement of the heart to the left would correspond to fluid which pushes the heart in a way that solid does not.

They did the natural and proper thing and put in a needle, pretty high up, but they got nothing. That does not rule out pus in the least. I have often put in a needle again and again and got nothing in these interlobar processes.

12. We had at the end either a meningitis or meningismus, which is a mild degree of the same thing, and something which gave him apparently a paralysis.

DIFFERENTIAL DIAGNOSIS

We have evidence of some cardiac mischief antedating these events which we have been discussing during the last days of life. That cardiac mischief I should suppose resulted in a hypertensive heart, hypertrophied and dilated without valve lesion. And on top of that he gets an infection which I see no reason to doubt was a pneumonia. The question is, did he have an empyema? I believe he will show a hypertrophied and dilated heart and some process which started as pneumonia and may have remained pneumonia, but which I think should show some pus in spite of the negative tap. What is at the left base? I do not know. Possibly fluid, perhaps only hydrothorax.

What about the brain? Meningitis is a not very uncommon complication of pneumonia, pneumococcus meningitis. So far as I can see he may perfectly well have it. That however will not account for his hemiplegia. If it is hemiplegia we should have to say either it is embolism or infarction of the brain on the left side, possibly connected with the weakness of his heart, intracardiac clot and infarction from that.

Possibly that is the whole thing. That might give him the whole picture, his Kernig and stiff neck. Nobody tapped his spinal cord. He was too ill. That prevents our knowing whether there was meningitis. Outside the chest and brain I see no reason to suspect disease.

A Physician: Do you ever get meningismus without meningeal infection?

Dr. Cabot: What we mean by meningismus is congestion and functional disturbance without actual findings post mortem.

A Physician: I mean with tumors or injuries to the skull.

Dr. Cabot: Not so far as I know. It is in infectious disease that we get it.

A Physician: How about bile in the sputum?

Dr. Cabot: The bile was part of the infection. Any man who has a bad jaundice will have bile in his sputum.

A Physician: How about endocarditis?

Dr. Cabot: Endocarditis is a perfectly possible complication. It is the kind of case that does get endocarditis. I cannot rule it out. I do not think enlarged epitrochlear glands mean anything as to syphilis. I made a series of Out-Patient studies on normal and on syphilitic men, following these glands in relation to syphilis. I do not think their enlargement means syphilis.

A Physician: The distended abdomen?

Dr. Cabot: A distended abdomen is a bad symptom in pneumonia. I do not believe it means anything more here. We have no local signs to suggest peritonitis or ascites.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Lobar pneumonia.
Pneumococcus septicemia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Pneumonia.
Empyema?
Hypertrophy and dilatation of the heart.
Hypertension.
Meningitis?

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

   Septicemia, pneumococcus.
   Lobar pneumonia.
   Acute meningitis and encephalitis

2. *Secondary or terminal lesions*

   Soft hyperplastic spleen.
   Icterus.
   Luetic aortitis.
   Slight hypertrophy and dilatation of the heart.

3. *Historical landmarks*

   Hemangiomata of the liver.
   Hypospadia.
   Chronic pleuritis.
   Obsolete tuberculosis, bronchial glands and apex of left lung.

Dr. Richardson: The skin in this case showed well marked icterus.

Head. The pia was infiltrated with thin pale cloudy fluid, and along the margins of the vessels was yellowish and suggested the presence of pus. A section showed that it was meningitis. Beneath this layer of meningitis the brain tissue in one or two places showed some infiltration with polynuclear cells,—a little encephalitis. The brain otherwise was negative. The brain weighed 1315 grams.

The lungs were bound down by old pleural adhesions. The upper lobe of the right lung was voluminous, solid, and the tissue of the upper two-thirds showed frank gray-red pneumonia fading out into red pneumonia in the lower third. In the middle and lower lobes there were no areas of consolidation. The tissue was spongy, leathery, and there was a slight amount of thin bloody fluid. The left lung showed no areas of consolidation. There was a small focus of obsolete tuberculosis at the apex.

The heart weighed 410 grams, slightly enlarged. The myocardium, valves, cavities, and coronaries were negative. There was a slight amount of arteriosclerosis in the aorta and in the ascending thoracic, in the first portion just above the cusps. It was like luetic aortitis, which microscopic examination showed it to be.

The liver was negative except, as a matter of record, that there were quite a number of hemangiomata, the largest three by two centimeters. It is not uncommon to find in the liver these small blood vessel tumors.

The spleen was slightly enlarged, very mushy, acute soft splenic tumor.

The kidneys weighed 430 grams,—rather large, but macroscopically and microscopically they were negative.

Culture from the heart blood showed a good growth of the pneumococcus.

CASE 12382

AN UNUSUAL SERIES OF DERMATOLOGICAL HAPPENINGS, ILLUSTRATING THE VALUE OF THE HISTORY

Dermatological Department

An American painter twenty-four years old entered Ward G on July 13 with a generalized brawny erythema of the entire skin of twenty-four hours' duration.

P. H. His dermatological history begins in the previous October, when he had an eruption which his doctor called pityriasis rosea. In January he had "white sores" on his genitals. In March he had a rash which was scattered over his body, most profusely on the inside of his arms and axillae. He further stated that he had a blood test in the army which was negative, and that many of these lesions were scabbed over. He stated that these disappeared in June. About this time he used considerable sulphur ointment for treatment. A history of a similar condition in his wife was obtained.

He appeared at the hospital Out-Patient Department for the first time on July 6 with a general excoriated papular eruption, itching especially at night. The eruption had been present a week or ten days. A diagnosis of scabies was made. Routine treatment of scabies was prescribed, using ointment Number Seven (naphthol, sulphur, balsam of Peru and petrolatum). After one application of this ointment he had much more severe itching, with much swelling of genitals, with groups of fine red papules, later with considerable crusting. According to the Out-Patient record there were sharply defined circular areas above the pubis suggesting ringworm, but a microscopic examination was reported as negative for spores or mycelia.

Under soothing local treatment this acute outbreak quieted down, and on July 11 the itching was a great deal better, but with the subsidence of the dermatitis and his scabies there was a macular eruption noted suggesting a roseola, and a grayish patch was found on one tonsillar pillar. He was transferred to the South Medical Out-Patient Department, where a note was made of a meatal primary, with a slightly enlarged hard gland in the groin, with slight general glandular enlargement, and a general follicular papular rash on the trunk. There were small ring-shaped lesions on the chest and abdomen. He had mucous patches in his throat.

P. I. Four-tenths gram of diarsenol was given intravenously and he was referred to Ward G for further treatment of his syphilis. This injection was given the day before his admission to the hospital. In the middle of the afternoon following treatment he became alternately hot and cold. The skin became red at night. He vomited at five o'clock. He was uncomfortable all night. His hands became puffed, red, and burned and itched.

P. E. Examination showed a very marked generalized erythematous eruption, probably more marked on the abdomen. His skin was rough, brawny, with a slightly indurated feel. Redness was displaced by firm pressure. In a few places were found fine white scales, especially between the fingers, and there were the remains of old scabetic lesions on the dorsum of his left foot. Note was made of the patch on his left tonsil, but it was impossible to observe the primary because of the swelling and edema.

Course in Hospital. In three or four days the scaling became much more marked, and eventually he had a very marked generalized exfoliation. He ran a slight temperature for nineteen days, having at one time a white count of 17,000, with 8 per cent. eosinophils. During his stay in the hospital he had four injections of intramin, 25 cubic centimeters each. He was discharged from the hospital to the Out-Patient Department on August 3.

Subsequent History. At his first appearance in the Out-Patient Department his skin had cleared a good deal, and at this time showed some sort of irritation on the chest. The middle of August he had developed a few furuncles on his legs. In September the skin was clearer, but the finger nails showed atrophic changes as evidence of the exfoliative state passed through two months before.

On October 27 he appeared at the Out-Patient Department Skin Clinic with an itching red eruption on hands, face and arms of four days' duration. He further stated that this appeared the day after he had done some painting and that similar phenomena had occurred four times since his discharge from the hospital in August. There were scattered blotches, with a finely papular red rash, and a few vesicles and crusts scattered over the areas mentioned. In five days the skin was practically clear. In his occupation as a painter he had never suffered any similar irritation previously.

NOTES ON THE HISTORY

DISCUSSION

BY C. GUY LANE, M.D.

The first abnormal condition noted as pityriasis rosea probably was that, because pityriasis rosea is a perfectly characteristic disease. It is not infrequently referred to the clinic as syphilis, but syphilis is very rarely referred as pityriasis rosea. It would be interesting in the light of events which followed to know how long his pityriasis rosea lasted, also what sort of and how much treatment he had.

The eruption three months later I believe was the beginning of his scabies. His penile lesions, the localization of other lesions, and the fact that his wife had the same condition suggested this diagnosis in spite of the fact that his hospital record makes no mention of itching. Of course itching in scabies is proverbial, and especially at night. All itching is worse at night, but the itching of scabies characteristically appears when the clothes are removed.

The record states that he had a blood test. That was probably for a Wassermann. Such tests of course are taken for anything on the skin. I do not question that. I think it is a good plan. But one should not conclude from one positive Wassermann that the man has syphilis. It needs confirmation. Such a test is a diagnostic pointer and not an absolute diagnosis.

I remember seeing this man on one of his first visits to the Out-Patient Department. He had in addition to his scabies a moderate degree of dermatitis which I have called Dermatitis

Number 1, probably from sulphur, which he had been using in the army. The routine treatment of scabies was prescribed at that time. It is a question whether the lesions should have been quieted down by suitable treatment before prescribing such a routine. In view of the later developments I believe it might have been the best plan. The ointment we used is usually rubbed in for three nights. But one night's treatment was sufficient to cause a severe dermatitis, which I will call Dermatitis Number 2.

Then we come to the next occurrence, the annular lesions above the pubes. These should have awakened an early suspicion of syphilis. I do not know how long they were present. Scabies does not produce ringed lesions, nor does sulphur, though we do see round flat lesions following a sulphur dermatitis. The fact that they suggested ringworm however ought practically to rule out such conditions. And I believe that syphilis, which does present ringed lesions, should merit attention, and that an examination should be made as to further evidence for or against syphilis. As one can see from the record, this further evidence was found a bit later, when his dermatitis had quieted down and after he had been transferred to the South Medical Department.

Here again I believe that the oft-repeated advice for a complete examination of the skin is still most excellent advice.

The meatal primary is of interest. Such a lesion is usually overlooked, and after the experience which I had in the army I am sure that scabetic lesions of the glans are not infrequently mistaken for syphilis. Furthermore some one has suggested that the scabetic furrow furnishes a point of entrance for the spirochetes. The two diseases, scabies and syphilis, are seen together not infrequently, and that perhaps may be the reason for some of the itching syphilides which are occasionally found.

DISCUSSION

This man on his entrance to the hospital had a dermatitis from his arsphenamin, and that I have labelled Dermatitis Number 3. He had the general exfoliative type, and his condition was one which I should call of moderate severity. You will note that at the time of entrance to the hospital he had a history of pityriasis rosea, scabies, a sulphur dermatitis, and a dermatitis from his recent antiscabetic treatment.

The main point I think in the whole case is this: the importance of a history before the administration of arsphenamin. Since the time that this case occurred Stokes of the Mayo Clinic has called attention in his cases there to the previous skin incidents or skin accidents in cases of dermatitis from arsphenamin. I do not mean to say that such accidents are the cause of all cases of arsphenamin dermatitis, but enough cases, I believe, have occurred so that it is necessary to inquire carefully about the skin history and proceed cautiously with our arsphenamin if necessary. This fact again is emphasized in his industrial dermatitis, which I have labelled for convenience' sake Dermatitis Number 4. This was in all probability due to turpentine. It appeared not only once but four times when he had started to go to work, so that I feel that his return to work is responsible.

Gardiner of Edinburgh has pointed out in a rather large series of cases of industrial dermatitis that in a large proportion of these cases there was also a previous history of recent pathological condition of the skin. So that both in the administration of arsphenamin and in cases of industrial dermatitis, or possibly in persons who are going to work at trades known to be irritant, a history of previous skin irritation is important. Such a dermatitis evidently does something to the skin. It makes the skin more sensitive to substances to which it has not reacted before and to which it probably would not react were it not for the previous skin irritation. I am willing to acknowledge that that is a lame way of explaining the situation, but at the same time it is the best we can do.

Arsphenamin dermatitis can vary from a mild eruption say on the forearms or legs at first, and usually occurring after the third or fourth injection, to the fatal or almost fulminating condition. Intramin has been of aid in a group of cases at this hospital, and sodium thiosulphate has been used with a fair degree of success elsewhere.

I think in this case it is worth while pointing out the fact that three of these major attacks of skin eruption were due to treatment of existing skin conditions, two by external means, one by intravenous medication. Several years ago in looking through the records of the Out-Patient Department I found that twenty per cent. of cases diagnosed dermatitis were due to therapeutic measures; not all of these, however, were used in dermatological conditions.

There is one other matter of interest, which is not included in the history. He returned later in the year at my request for skin tests. I used for these tests the ingredients of the ointment used for scabies, turpentine, arsphenamin, neoarsphenamin, and a control. The only reaction which occurred was about the area to which the balsam of Peru had been applied. This area showed a marked vesiculation over an area of about one-half to three-quarters of an inch. There were numerous vesicles outside this area. This lasted from seven to ten days. It must be remembered that this test was made after his skin had already been irritated by the ointment, by the turpentine, and by the arsphenamin. But at any rate it suggests that balsam of Peru may have been the active factor in the dermatitis which followed his treatment for scabies, and therefore may bear a causal relationship in the last two insults to his skin.

This case shows a most unusual sequence of dermatological accidents in two years, which made it necessary for the patient to change his occupation, not to mention the time lost because of the various pathological conditions of his skin.

A Physician: Has this man a history of any urticaria?

Dr. Lane: No. His skin history begins with the pityriasis rosea; none of his lesions at any time suggested urticaria.

A Physician: Doesn't it seem unusual that he should not have had an urticarial tendency when he reacts so easily to external and internal medication? Or has it anything to do with allergy?

Dr. Lane: I do not believe it has anything to do with allergy in the sense that this latter is a more specific thing. I believe we should class this case as one with a sensitive skin, sensitive generally rather than sensitive to any one specific substance. As far as the urticarial tendency is concerned, we may see skins develop a a dermatitis from external agents, as an eruption from drugs, for example, without any urticarial manifestations.

DIAGNOSIS

(Pityriasis rosea.)
Scabies.
Dermatitis (probably due to sulphur).
Dermatitis (due to ointment).
Syphilis.
Toxic erythema with exfoliativa (diarsenol).
Industrial dermatitis (probably due to turpentine).

CASE 12383

CEREBRAL SYMPTOMS ASSOCIATED WITH RESPIRATORY INFECTION

Children's Medical Department

A Hungarian-American Jewish boy eleven years old entered August 3. The complaints were drowsiness and fever of one day's duration. He was normal at birth and developed normally. He had measles at five years, influenza at five and a half, and whooping cough at six and a half.

August 1 he went swimming. The next day he felt well until three o'clock in the afternoon. Then he complained of feeling tired. His mother put him to bed at once. An hour later he complained of headache. He was given Ex-Lax, and immediately vomited his noon meal. In the evening he was given a dose of castor oil, and half an hour later vomited again. At that time he was feverish. The morning of admission his bowels moved at five and at six o'clock. At eleven o'clock he was pale, yellow and more feverish. He complained of no pain except headache. A doctor gave some pills. Two hours later the patient became unconscious and at the same time restless when disturbed even slightly.

When seen in the Emergency Ward he was drowsy, very restless when disturbed, skin very dry, with a rectal temperature of 106.6°, pulse 130, respiration 40, leucocytes 32,000. There was marked neck rigidity and definite Kernig. At 9 p. m. he went into a convulsion, with arms and legs stiffened and hands grasping in the characteristic cerebral spastic manner. The whole body was cyanotic and spastic. The eyes were rolled up. There was a little foaming at the mouth. An attempt to straighten the limbs was unsuccessful. There was definite anal sphincter relaxation. The convulsion lasted about five minutes. After it he went to sleep. There was definite Babinski and ankle clonus on the left. The left knee-jerk became hyperactive, though fifteen minutes before it was not made out. The eyes showed no definite strabismus or nystagmus.

Examination in the wards later showed a well nourished, sick looking boy lying on his side, tossing about in a semiconscious condition and very irritable. Moving his body caused pain. The skin showed petechiae. The head was held thrown slightly back. The legs were flexed on the thighs and the thighs on the abdomen. The head and limbs were held somewhat rigid. The head showed no evidence of recent injury. The eyes were turned in, the pupils irregular, unequal, and reacted sluggishly to light and accommodation. The nose and ears were negative. The mucous membranes of the mouth were pale. The tongue was coated. The tonsils and pharynx were reddened. The lungs showed slight impairment. At the right apex were harsh breath sounds. The abdomen was scaphoid, with no abnormalities except a few red spots on the skin of the upper abdomen and chest. The abdominal reflexes were active. The knee-jerks were increased. There was marked neck sign with Brudzinski, and bilateral Kernig with inability to bring up the legs more than at a right angle. The knee-jerks were increased, with no Babinski. Ankle clonus was present. There was dermographia. The patient was hyperesthetic.

The urine was alkaline at one of three examinations, specific gravity 1.014 to 1.028, the slightest possible trace of albumin once, acetone once; sediment, occasional leucocytes at one examination, five per high power field in a centrifuged specimen at another. Blood: leucocytes 32,000 August 3, 9,800 August 6, 19,300 August 12, 11,150 September 7, polynuclears 83 to 58 per cent., reds 6,710,000 to 4,540,000. Wassermann negative. Stools firm with water; guaiac strongly positive.

The temperature was 101.9° to 106.8°, the pulse 120 to 157. August 10 to 26 the temperature was 98° to 101.8°, from August 27 to September 14 97° to 100.6°. After August 9 the pulse was 88 to 138. The respirations were 30 to 55 until August 12, afterwards 20 to 40.

	Amount	Character	Pressure		Total cells	Polynuclear neutrophils	Protein	Goldsol	Sugar	NaCl	Wassermann	Smear	Culture	Antimeningococcic serum injected
			Initial	After jugular compres.										
Aug. 3 Lumbar	15 c.c.	Clear white	Greatly increased		89							Gram-negative intra- and extracellular diplococci	A few Gram-neg. diplococci	
Aug. 4 1:30 a.m. Lumbar		Slightly yellow	300	400			21	0011000000	82	653				32 c.c. polyvalent
Aug. 4 3:30 p.m. Lumbar	25 c c.	Clear	300	500	280	82%	178	1111122342	63	630		Large number white cells. No organisms.		28 c.c. polyvalent
Aug. 5 Lumbar	30 c c.	Clear	220	540	227		84	0000120000	79	629	Negative	Many intra- and extracellular Gram-negative diplococci; some elongated and disintegrated and tailed Gram-positive diplococci.	No growth	35 c c. polyvalent (10 c.c. withdrawn)
Aug. 6 Cistern	35 c.c.	Clear yellow	300		19		32	0000111100	75	622	Negative	Gram-negative intra- and extracellular diplococci	No growth	17 c c. polyvalent
Aug. 7 Ventric.	15 c c	Clear	150		5		55	0000111100			Strongly positive*		No growth	15 c.c. half strength
Lumbar			150		0									

Dynamics normal throughout.

*Discounted as probably due to an error in technique.

The orders were for forced fluids reinforced with lactose, tube feeding and whiskey one ounce every three hours.

At 9:30 the evening of admission lumbar puncture was done, and another at 1:30 a. m. August 4, when 30 cubic centimeters of polyvalent serum was given intraspinously. That day the boy was very irrational and restless, and refused to respond when spoken to or to take food or liquids. An enema was expelled. At half past three another lumbar puncture was done, and 28 cubic centimeters of serum given. Before the puncture the blood pressure was 112/64, after the puncture 107/50.

Two blood cultures August 4 showed no growth, and a Gram-stained smear of the blood showed no organisms. Cultures from the throat and from a posterior nasal swab showed a few Gram-negative diplococci in both tubes.

August 5 the patient seemed improved. He was rational and answered questions. The temperature was down to 101.8°. He took fluids by mouth. There was less hypersensitiveness and the neck was not so rigid. A neurological consultant advised cistern injection of serum, since no permanent benefit had come from the lumbar injections. That afternoon another lumbar pucture was done, and 35 cubic centimeters of serum given. After the injection of the serum into the spinal canal the temperature shot up to 104.4° and the blood pressure fell to 96/50. 10 cubic centimeters of serum was withdrawn with no change. Atropin gr. 1/150 and adrenalin ½ cubic centimeter were given with good results. The boy seemed very drowsy and responded only after great effort. The temperature reached 105.2°, the neck seemed more rigid, and moving the child seemed to give him pain. August 7 he was delirious at intervals and did not respond at all. There was a boggy swelling at the site of the cistern tap. He had not had the expected reaction from this injection or any of the others. A short dry cough had been present since the day before and the lungs showed scattered areas of fine subcrepitant râles over the left base. The temperature was 104.8°. A nerve consultant reported, "The continued temperature after four treatments with serum seems to indicate ventriculitis. Advise ventricular puncture and intraventricular serum." Later in the day an area of consolidation appeared at the left base with bronchial breathing. Sponging relaxed the patient, and he fell into a restful sleep with a fall of one half to one degree in temperature. Everything considered he seemed worse than at any time since admission. A nasal tube was inserted for food and liquid feedings.

That day a combined ventricular and lumbar puncture was done. The posterior horn of the right lateral ventricle was tapped simultaneously with the lumbar region. The pressures in the two loci were normal, being about 150 millimeters. There was no evidence of block between the ventricular and the lumbar region. The ventricular fluid seemed clear. About 15 cubic centimeters of fluid was withdrawn from the ventricle. 15 cubic centimeters of half strength antimeningococcus serum which had been diluted with salt solution was then allowed to flow by gravity into the ventricle, and at the same time cerebrospinal fluid was allowed to flow out of the lumbar needle, thus washing out the spinal fluid system during the administration of the serum. The patient stood the operation very well. The next morning, however, his condition was very bad. He refused fluids by mouth. The temperature was 103.5°-106°. The lung signs were distinctly more evident. The right base showed coarse râles. The heart sounds were very faint, rapid (150) and irregular. The patient was semiconscious but irrational. The nerve findings were the same, though the knee-jerks were very slight and inconstant. There was impairment in the left subscapular area with bronchial breathing and occasional inspiratory clicks. Tactile fremitus was increased.

From this point he gradually improved, became more rational and less irritable and sensitive. The neck signs, reflexes and Kernig became less marked. The face was flushed. He slept much, but could be easily aroused and answered questions intelligently. By August 10 the temperature was 98.6°, the pulse 100-110, the respiration 35 to 40. He took and retained sufficient fluid. The diet was increased to soft solids. On the right flank posteriorly was a large kidney-shaped dark brown area resembling hemorrhage into the skin, not present the day before and of unknown cause. In the lumbosacral region over the bone and neck prominences were two reddened areas with a small abscess at the center of each.

By August 12 the lungs were clearing up well. The stiffness of the neck, the Kernig and the pain on movement were entirely gone. Slight strabismus of the left eye remained, but was gone by the 14th. By the 16th a new abscess appeared over the anterior-superior spine of the left ilium involving the deep structures of the inguinal canal. There was deep fluctuation. Some pus was obtained from the wound of the ventricular puncture. The abscess over the ilium was opened, and drained well. By August 22 the infection about the trephine and that of the back had cleared. There were still scattered coarse râles over both bases, but no signs of fluid or pus. From this point he gained strength rapidly. By the 26th all toxic signs had cleared up and he was about in a wheel chair and taking the regular hospital diet with relish. By the 30th he was making attempts to walk, at first somewhat unsteadily. By September 2 he walked well. No impairment of the muscles could be found. At his discharge September 12 his physical condition was very good. His mentality and nervous and muscular systems were quite normal.

Discussion

BY ELI CHARLES ROMBERG, M.D.

We have a young boy whose past history is essentially negative, who very abruptly develops a severe headache followed by high fever and marked prostration. He is given a cathartic which he promptly vomits. The condition is not relieved by other medication. The severe headache is his chief complaint. The condition becomes progressively worse, he has generalized convulsions, upper neck and body pains particularly on movement, and soon he lapses into unconsciousness occasionally disturbed by periods of delirium. At times he can be awakened from his dull apathetic state to answer a brief question and to take a little fluid, which apparently is difficult for him to do.

The important physical findings are a high sustained temperature (106.6°) on entry—pulse elevated (130) and respiration increased (40). There is a persistent neck rigidity with the head thrown slightly back, bilateral Kernig, with Babinski and ankle clonus of the left lower extremity. The pupils are irregular and unequal and react sluggishly to light and accommodation. There are scattered petechiae. There is dermographia and the patient is hyperesthetic. In the right posterior apex there is only suggestive impairment with rather harsh breath sounds.

Most of the time the patient was unconscious, and several times the end seemed very near. He had very many generalized convulsions which lasted from about five to ten minutes, during which he became extremely cyanotic and was incontinent. On the ninth day from the onset of the disease there was a sharp drop of his temperature, pulse, and respiration to normal. The important laboratory findings are: leucocytes 32,000 with a high polynuclear count, a clear spinal fluid the pressure of which was greatly increased at all times, the cell count varying from 89 on the first examination to 280 on the second. A smear made from the culture showed many Gram-negative intra- and extracellular diplococci. There was an increase in the sugar content of the spinal fluid which persisted during the infection.

It is very unusual to have many cases of pneumonia on our ward in the summer. At this time there were three such cases, two of which showed marked meningitic involvement: there was a history of sudden onset, high temperature, convulsions, with marked rigidity of the neck and bilateral Kernig. Examination of the chest showed a localized impairment to percussion but none of the other signs of infiltration. The spinal fluid was negative in each case. Gradually within two or three days the meningeal signs disappeared, and on the fourth day where there was only a suggestive impairment. There were now all the signs of a localized pneumonia. The crisis took place with an uneventful recovery. This is the typical picture of a pneumonia that does not show its physical signs for at least three to four days, and during the first few days has all the earmarks of a true meningitis. If it had not been for the lumbar puncture with the production of a typical growth and the finding of the intracellular diplococci, it might have been considered an aseptic meningitis or a meningismus, like the other two cases presented.

With the finding of the clear spinal fluid I do not know what prompted the intern to inject into the spine the antimeningococcus serum. Having so little else in the physical examination to consider other than a meningitis he thought such a procedure would do no harm anyway; unless he felt that in a child a temperature of 106.6° was indicative of meningeal involvement. It is rather unusual to have a clear fluid in meningococcus meningitis, but it is seen in the first twenty-four hours particularly in the fulminating types of this infection. In such fluids seen at this time there usually is an excess of mononuclears, though the cells are few and the organisms quite numerous. Some believe that a clear fluid brings with it a bad prognosis, unless the organisms gradually decrease in number. This boy had a reddened pharynx, and cultures from the throat and from a posterior nasal swab disclosed Gram-negative diplococci. Perhaps the invasion of these organisms was from the nasopharynx directly into the blood stream. The smears from a spinal fluid in this infection show a preponderance of intracellular diplococci with many extracellular diplococci. The reduction of sugar in the spinal fluid in such cases has been considered of great importance. In any case of purulent meningitis there generally is a fairly good reduction of Fehling's or Benedict's, this frequently disappearing as the patient becomes worse. In mild cases the reduction may be within normal limits throughout the disease. In this case the sugar reduction was slightly increased throughout the infection. On August 4 the goldsol was reported as 1111122342, which is fairly typical of a meningitis. At other times it was not characteristic of anything.

Though it is stated that positive blood cultures are obtained from meningitic patients who show petechiae, we were never able to obtain any growth.

Ordinarily in a case of meningococcus meningitis after an intraspinous injection of antimenigococcus serum the patient is decidedly improved on the next day. If there has been any vomiting this ceases, the temperature is distinctly lower, and the fluid if it has been purulent becomes less so. Usually in an uncomplicated case after about four to five daily lumbar punctures the temperature will be practically normal and all the other subjective symptoms tend to disappear. When our patient showed no improvement after several intraspinous injections, though his spinal fluid was distinctly improved, we thought that there might be a block of the Luschka and Magendie foramina. A combined cistern and spinal tap showed no obstruction, with a clear fluid. Still the temperature persisted (105°), the physical findings previously described were present, and the patient was extremely low. At this time, the fifth day of the disease, there was definite impairment in the left subscapular region with all the typical signs of pulmonary infiltration. This seemed to explain the persistence of the temperature after the findings of clear spinal fluids, yet the patient was too profoundly prostrated and the meningeal symptoms, which ordinarily would have disappeared in two or three days if they were nothing but evidence of a meningismus, still persisted almost as acute as on entry. Because of this situation the possibility of a ventriculitis was considered, with possible obstruction of the foramina of Monroe or the iter. A tap was done, and again the fluid appeared clear. We then decided to mark time and eliminate any further antimenigococcic treatment. We did not think it wise to attempt intravenous medication at any time, as it is not an advisable procedure in children. It was interesting to observe that as the spinal fluid cleared up the diplococci took on a Gram-positive stain.

Ordinarily it is a bad policy to attempt to explain any sudden illness by two distinct pathological processes, different in the infecting organism, the mode of transmission and the pathology that develops. Our course of treatment was justified by the findings of the first few lumbar punctures, and the other surgical procedures illustrated interesting methods of determining whether there is any disturbance in the spinal fluid circulation in such an infection. Apparently the pneumonia was the cause of the persistence of the fever after the spinal infection had cleared up. If no spinal fluid investigation had been made at all, and we had merely observed the patient clinically, and had seen his temperature and pulse chart, we should probably have called this a case of pneumonia.

I saw him nine months later. I recommended that he should not go to school. He shows absolutely none of the sequelae so frequently associated with meningitis. He is bright, active, walks normally. There is no evidence of paralysis, no ear involvement, no heart or lung or any of the complications so frequently found with this condition.

Dr. Cabot: I have seen a good many combined pneumonias in meningitic cases in adults. I think the question of some interest here is whether we can say it is pneumonia and meningitis or meningitis and pneumonia. I should say it is pneumonia and meningitis—pneumonia the big and meningitis the small factor. The comparatively low count of cells, the clearness of the fluid, and especially the way the temperature came down, as you pointed out, seem to me to show that he was essentially sick with pneumonia.

Dr. Romberg: Do you suppose he may have been a carrier, so that this focus of infection led to this mild meningeal involvement?

Dr. Cabot: It seems perfectly possible.

DIAGNOSIS

Cerebrospinal meningitis, epidemic.
Lobar pneumonia.

RED CROSS SERVICES FIGHT SUPERSTITION IN PROMOTING HEALTH

Substituting the skill and science of modern medicine for the dangerous devices of the witch-doctor, the old-wife, and other ancient sources of "cures," is a part of the daily work of the Red Cross Public Health Nurses, working in conjunction with Red Cross Chapters in every part of the United States.

Besides their usefulness in promoting community health, the Public Health Nurses instruct classes in the community in care of the sick in the home, and perform other valuable work.

Another service engaged in fighting obsolete ideas which affect safety and health, is the First Aid and Life Saving branch of the Red Cross, which advocates such improvements as antiseptic bandages in place of musty cobwebs to staunch bleeding, and teaches thousands every year to apply efficient first aid until a doctor arrives. This knowledge has undoubtedly saved lives on many occasions, as Red Cross reports show.

These are some of the reasons for the Red Cross program, which needs the active support, through membership, of every American. Join during the Tenth Annual Roll Call this year, from November 11th to 25th.

SILENT SICKNESS

Some very remarkable figures are brought out in a recent study by Dr. Edgar Sydenstricker, statistician of the United States Public Health Service, in reporting on a sickness survey recently conducted in Hagerstown, Maryland.

This study, based on sickness records for 7200 white persons of all ages and the mortality among the total white population covering a period of 28 months, shows that while the sickness rate from respiratory diseases was 668 per thousand, these diseases constituted only 19 per cent. of the death rate. On the other hand, while the sickness rate from diseases of the heart, blood vessels and kidneys was only 36 per thousand, these diseases constituted more than 34 per cent. of the death rate.

Another interesting point brought out is that at ages 45 to 64 it was found that the number of illnesses per death was only 50 while at ages of 15 to 24 the number of illnesses per death was 200.—*Life Extension Institute Journal.*

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A MEDICAL DUTY

SOMETIMES the remission of a disease may spell more harm than an epidemic itself. We may feel that natural changes are causing a disease to recede, that sanitary measures are bringing about its decline, or that our efforts are leading to its conquest. In any case we give its dangers less thought, we may slacken our efforts at prevention, and thus we may prepare the field for another epidemic sweep.

We should be on our guard against diphtheria. For three years we have been enjoying an increasing relief from this disease, the sickness and death rates being the lowest in the recorded history of the state. Diphtheria prevention measures have played some part in this general decline, but not necessarily a major part. It is the nature of this particular disease to rage until there are no more susceptibles to attack, then to be quiet until fresh susceptibles come along. Denmark was favored with just such an interval as we are now experiencing. There, active immunization by means of toxin-antitoxin was not practiced so that was not a factor in reducing the prevalence. After three years of comparative and welcome respite, that country saw diphtheria mount again to its old high level. Our good fortune of the last three years is being shared by Norway, where no new specific measures have been taken to thwart the disease. There apparently the disease is in one of its natural troughs.

We know that in many medical minds the fear of diphtheria is being lulled by its relative absence. Some practitioners are relaxing their urgence upon parents for the active immunization of children, and some are advising against the practice, feeling perhaps that the danger has passed. Unless the disease is changing its character—and that has never been its history—it will come back again and in virulent type.

This then, instead of being the time for relaxation, is the time to prepare against its coming. With active immunization of children with toxin-antitoxin there will be just so many less victims to its next attack.

HEREDITY AND CANCER

THE question as to whether or not cancer, or in a more general sense malignant disease, is influenced by heredity has always been a much mooted question.

By far the majority of experimental workers believe that the *tendencies* toward cancer resistance and susceptibility are both inheritable factors. The most convincing work has been that of Slye[1]. During a period of seventeen years approximately sixty-five thousand mice have been observed and on the basis of these observations she concludes that the tendency toward cancer, or cancer susceptibility, expressed in terms of the Mendelian law, is an inheritable characteristic recessive to the dominant cancer-resistant characteristic.

In view of the facts (1) that statistical studies, such as those of Little[2]. and Weinberg[3] show a higher incidence of malignant disease in the blood relatives of cancerous individuals than in those of non-cancerous, (2) that many notable "cancer families" have been reported, (3) that the etiological factor concerned in malignant disease is probably one having to do with abnormalities of the unknown controlling mechanisms of cell growth and that other similar abnormalities, as evidenced by brachydactyls, dwarfs, giants, etc., are probably inheritable and (4) that experimental work in lower mammals has proved the inheritability of the tendency toward and against cancer, it seems more than likely that in humans this same factor of inheritance must play some role.

However, it must not be assumed that such tendencies are the only factors involved. Undoubtedly many other factors are concerned in the control of the delicate growth regulating mechanism of the body tissues. In humans chronic infection or irritation *per se* is frequently the chief contributing cause of malignancy.

From a practical point of view a great deal can be contributed by the physician as regards familial statistics of cancerous individuals and probably the marriage of individuals each with pronounced cancerous families should be discouraged.

REFERENCES

1 Slye: J. Can. Research, 1926, X, 15.
2 Little: Carnegie Instit., Year Book No. 20, 1921, 139.
3 Weinberg: Z. f. Krebs-Forsch., 1904, II, 201.

HYGEIA FOR SEPTEMBER

We have been criticised for a recent endorsement of *Hygeia* by a prominent practitioner whose opinion carries weight. This critic based his contention on what was believed to be a glaring misstatement in a former issue of this publication. The early issues of this journal did not appeal to a considerable number of conservative physicians. We believe that great improvement has been made in this journal and that the September number is a valuable contribution to that form of publicity which will convey to the laity proper understanding of the great contributions which scientific medicine has made to humanity. We have found nothing objectionable in this number but on the contrary the pages are crammed with useful information presented in a way to carry a lesson which will influence the lay reader.

If the article under the title "He Stoops to Conquer" could be read by every intelligent voter of the country and compared with the literature of the cults, we would never need to fear the possibility of legislation which would legalize irregular or degrade honest medicine.

Even at the risk of displeasing some of our friends, we urge the placing of this September issue of *Hygeia* in the hands of every person who can read and understand the English language.

THIS WEEK'S ISSUE

Contains articles by the following authors:

King, Donald S., A.B.; M.D. Harvard Medical School 1918; Assistant in Medicine, Harvard Medical School; Assistant Physician Out-Patients, Massachusetts General Hospital. Address: 205 Beacon St., Boston. He writes on "The Relation of the School Physician to the Family Doctor," page 605.

Mixter, Charles G., S.B.; M.D. Harvard Medical School 1906; F.A.C.S.; Member American Surgical Association, New England Surgical Association, Southern Surgical Association; Instructor in Surgery, Graduate School of Medicine, Harvard University; Assistant Surgeon, Children's Hospital, Boston. Address: 270 Commonwealth Ave., Boston. He writes on "The Surgical Aspects of Pyuria in Childhood," page 615.

White, Benjamin, Ph.D. Yale; Director of the Massachusetts Antitoxin and Vaccine Laboratory, Assistant Professor Bacteriology and Immunology, Harvard Medical School and School of Public Health. Address: 375 South St., Jamaica Plain. His subject is "Diphtheria Prevention," page 625.

Huber, Edward G. Detailed Record on Page 291, No. 6, Vol. 195. Continued article on "The Control of Communicable Diseases Prevalent in Massachusetts," page 632. Address: War Dept., Washington, D. C.

The Massachusetts Medical Society

STATED MEETING OF THE COUNCIL

A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, Wednesday, October 6, 1926, at 12 o'clock, noon.

Business:

1. Committee of Arrangements: Plans for Annual Meeting.
2. Committee on Membership and Finance. Reports.
3. Committees to consider petitions for restoration. Reports. New petitions for restoration to privileges of fellowship.
4. Committee on Medical Education and Medical Diplomas. Report to Council, June 8, 1926, a reprint of which is inclosed. Resolutions on the last page, which were referred to this meeting by vote, are called to the attention of Councilors.
5. Committee on State and National Legislation. Presents a pamphlet on Medical Relief in Disaster, adopted by the House of Delegates, American Medical Association, for action. Copy inclosed.
6. Appoint Auditing Committee.
7. Perfecting amendment to clause (c), Section 8, Chapter I, of By-Laws.
8. Action on suggestion of David W. Parker, M.D., of Manchester, N. H., President of New Hampshire Medical Society, as to the formation of a New England Medical Council.
9. Incidental Business.

Walter L. Burrage,
Secretary.

MEMBERSHIP CHANGES

August 1, 1926, to September 1, 1926

Note:—The deaths will be found under "Recent Deaths," in the columns of the Journal, as reported.
Walter L. Burrage, *Secretary.*

Chadbourne, Arthur P., from Denver, Colo., to Dwight Ill., U. S. Veterans Bureau Hospital.

Cleaves, Edwin N., Boston, from 39 Hemenway Street to 1109 Boylston Street.

Crotty, Martin F., Boston, now 395 Commonwealth Avenue.

Davis, Frank A., from New Haven, Conn., to The Bronx, N. Y., U. S. Veterans Hospital.

Dayton, Neil A., from Medford to Waltham. Office, Boston, Department of Mental Diseases, State House.

Gallagher, William H., from Boston (Suffolk) to Somerset, Pa. (Non-Resident List), Somerset County Hospital.

Gilchriest, Bernard F., Springfield, from 719 to 726 Main Street.

Goodall, Edwin B., from Wollaston (Norfolk South) to Newton Center (Middlesex South). Office, Boston, 15 Bay State Road.

Jenkin, John T., has left Worcester and is now at Shrub Oak, Westchester County, New York State.

Judd, Ernest H., Springfield, now 6 Temple Street.

Korb, Harry, from New York City to Roxbury (Norfolk), 64 Brunswick Street.

Medalia, Leon S., Boston, has moved from 483 Beacon Street to 78 Bay State Road.

Metcalf, Ben H., Phoenix, Ariz., now 533 West Willetta Street.

Miner, L. M. S., has moved his Boston office from 153 Newbury Street to 363 Marlborough Street.

Moore, George C., Boston, has moved from 384 to 475 Commonwealth Avenue.

Morrison, A. B., from Weeks Mills, Me., to Woodford's, Portland, Me., 861 Brighton Avenue.

Morse, Joseph L., Roxbury, now has a temporary address in New York City at the Skin Department of the Vanderbilt Clinic, Sixtieth Street and Amsterdam Avenue.

Morse, Roy S., from Ashland to Framingham, 49 Lexington Street.

O'Toole, John L., Bradford, now has his office at Haverhill, 54 Merrimack Street.

Parker, Wallace A., from Charlestown (Middlesex South) to Becket (Berkshire).

Parks, Silas H., from West Stockbridge to Great Barrington, 28 Castle Street.

Parsons, A. W., Texas, from San Antonio to Houston, General Delivery.

Perkins, Arthur H., from Boston (Suffolk) to Charlestown (Middlesex South). Office, Boston, 475 Commonwealth Avenue.

Rauscher, Raymond F., Lynn, from 23 to 64 Nahant Street.

Reilly, Thomas F., Springfield, now 17 Rittenhouse Terrace.

Rudy, Abraham, of Dorchester, is now at Richmond Hill, L. I., New York, care of C. M. Levin, Lefferts and 107th Avenue.

Steele, George L., Springfield, from 6 to 20 Maple Street.

Stettler, Wayne D., from Slatington, Pa. (Non-Resident List), to Needham (Norfolk), Post Office Building.

Watkins, Harvey M., from Waltham (Middlesex South) to Polk, Pa. (Non-Resident List), State Training School for the Feeble-minded.

Yaffe, J. P., has moved his Boston office from 491 to 485 Commonwealth Avenue.

The following Worcester Fellows have moved their offices to the Medical Arts Building, 36 Pleasant Street, Worcester. Other removals to that address have been printed previously.

Adams, Donald S.
Andrews, B. F.
Ayers, C. E.
Berry, Gordon
Berry, J. C.
Bieberbach, W. D.
Clement, M. W.
Cutler, R. W.
Denning, W. E.
Fisher, Edgar A.
Fitzgerald, Clara P.
Kimberley, A. M.
Lachance, A. P.
La Liberté, E. J.
Langill, M. H.
Leib, E. R.
Lewis, E. S.
McGillicuddy, J. T.
Maguire, F. L.
O'Connor, Joseph W.
Schofield, R. W.
Sparrow, C. A.
Trowbridge, E. H.
Vamvas, A. D.

MISCELLANY

RESULT OF THE JULY, 1926, EXAMINATION CONDUCTED BY THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE

Comparative List of Accepted and Rejected Applicants from the Various Medical Schools

	Accepted	Rejected
St. Louis College of Physicians and Surgeons	4	17
Middlesex College of Medicine and Surgery	9	13
Boston College of Physicians and Surgeons	2	2
Tufts College Medical School	60	5
University of Montreal		4
Massachusetts College of Osteopathy	1	18
University do Porto		1
Los Angeles College of Osteopathy	1	
Philadelphia College of Osteopathy	2	3
Harvard Medical School	16	
Kansas City College of Physicians and Surgeons		1
Boston University School of Medicine	18	
University of Lisbon		1
Queen's University	1	
University of Maryland	1	
University of Colorado	1	
Jefferson Medical School	1	
Western University		1
Kirksville College of Osteopathy	1	3
Bowdoin	1	
University of Nebraska	2	
Yale	1	
Des Moines College of Osteopathy		1
Meharry	2	
Syracuse University	1	
University of Vermont	1	
	126	70

RECENT DEATHS

BRIGHAM—Dr. Edwin Howard Brigham, Librarian Emeritus of the Massachusetts Medical Society, Library Curator of the Boston Medical Library, died at Watertown, September 14, 1926, aged 85 years.

BANCROFT—Dr. Winfred Baxter Bancroft of South Boston, a retired Fellow of the Massachusetts Medical Society, died at Rutland, of tuberculosis, September 14, 1926.

A descendant of Thomas Bancroft, who came to Dedham in 1640, Dr. Bancroft was born May 30, 1850, in the town of Templeton, the son of the Hon. Alonzo and Harriet (Jewett) Bancroft. He was graduated from the Boston Latin School in 1870, took his A.B. from Amherst in 1874, and his medical degree from the Harvard Medical School in 1877.

After a short service as assistant physician at Danvers Lunatic Hospital and at the McLean Hospital he returned to South Boston, where he resided until his last illness. He was closely identified with social and philanthropical activities. He became a member of Phillips Congregational Church, May 3, 1885, was elected clerk of the parish in 1892, and had served in that capacity since. He was a member of the board of directors of the City Missionary Society, and secretary of the Howard Benevolent Association from 1901 to 1918, and since 1918 had been president. He was physician to the Suffolk County House of Correction and for about 40 years he was attending physician of the Farm and Trades School, Thompson's Island.

BRECK — Dr. Samuel Breck, for many years a practitioner of Boston, died at Waverley, September 12, 1926, after a long illness.

He was born in Washington, D. C., August 8, 1862, the only son of the late Brigadier-General Samuel Breck, adjutant-general, U. S. A., and Caroline J. Barrett. After taking an S.B. at Columbia University, New York, he entered the Harvard Medical School, from which he received his degree in 1886. Following his term of service as house officer at the Boston City Hospital, on the medical side, he became associated with the late Dr. O. W. Doe, who had an extensive practice until his death. Dr. Breck subsequently was connected with the medical out-patient department of St. Elizabeth's Hospital, specialized in gynecology and had an office in Boston, later moving to Brookline to live. He was physician to the Boston Dispensary and was foremost in urging the establishment of the Boston Floating Hospital and served on the original staff. The Berkeley Infirmary at 44 Dwight street was also founded through his efforts, and he was for years its active head.

Besides his wife, Mrs. Louise Eddy Breck, there are five surviving children. The name of Samuel has been borne by the eldest son in the family for five generations and there was until recently a family group of four Samuels, Brigadier-General Samuel Breck, Dr. Samuel Breck, Samuel Breck, 3rd, and Samuel Breck, 4th.

LIVINGSTON—Dr. Ernest George Livingston of Lowell died suddenly of heart disease at his summer camp at Mountain Rock, September 11, 1926, aged 54 years.

He was born in West Berkshire, Vt., April 18, 1872, and received his primary and high school education in the schools of Richmond, Vt., 12 miles from his native village. Early in the 90's his parents moved to Lowell and from there he entered the Medical School of the University of Vermont, from which he was graduated in 1898.

Upon his graduation he returned to Lowell and opened an office in the Fairburn building, making a specialty of infectious diseases. He was known to his intimates as a man of good nature, ready wit and constant readiness to be of assistance to his fellows.

He was a member of the Massachusetts Medical Society, the American Medical Association, the Lowell Lodge of Elks, the William North Lodge, A. F. and A. M., Mt. Horeb Royal Arch Chapter, Ahasuerus Council, Pilgrim Commandery, Knights Templar, Massachusetts Consistory, Aleppo Temple of Nobles of the Mystic Shrine, Lowell Commandery, Knights of Malta, Loyal Integrity Lodge of Odd Fellows and the Manchester Unity Lodge, I. O. O. F.

Survivors include his widow, Mrs. Arvilla C. Livingston, one daughter, his mother, Mrs. Frances E. A. Livingston, and one brother, Dr. Clarence B. Livingston, a member of the Massachusetts Medical Society.

CORRESPONDENCE

AFFAIRS IN FRANCE RELATING TO MEDICINE

Editor, Boston Medical and Surgical Journal:

The medical bacteriologist touring in France finds little of obvious interest in public health. The crops are good. The harvest in Normandy and Brittany is progressing satisfactorily. There has been very little rain. In the larger towns and cities the paved streets are washed. Where surface drainage persists there is, of course, some smell, but those in charge of the streets try, according to their lights, to keep them clean. In some Departments there is no special commission on public health.

At Quimper the director of the Agronomic Laboratory told me of his work on the chemistry of soils, the diseases of plants, and a crude bacteriological examination of water supplies. Work on diseases of animals is all done in Paris. The veterinary inspector for the Department sends specimens to Paris when necessary. A little local bacteriology is done by the doctor in the hospital. His helper is being trained in Paris. During the war, when this laboratory did bacteriological control for the army, including meat inspection, out of every thousand cattle slaughtered there would be only two infected with tuberculosis. There are many cases of human tuberculosis, but the cattle are out of doors winter and summer. The climate is favorable for hay and pasturage, so there are a great many cattle—more than in Normandy.

At Concarneau there is a research laboratory in connection with the "College de France" and the Paris Aquarium. The director is experimenting on the physiology of respiration in fishes. They have no bacteriological researches at present, though they worked on the contamination of oysters by sewage some years ago. The director explained to me that the official inspection of the tuna fish brought in by the larger fishing boats is for size, weight and quality. As practically all the tuna are bought by canneries and sterilized in the process of packing, there is no need to consider the bacteriological point of view. The sardines, two hundred in a basket, are sold by auction to the numerous canners without inspection.

At Quiberon there are similar picturesque fleets of fishing boats and more canning factories.

At the Hospice Generale in Tours I found a small, well equipped laboratory where is concentrated the bacteriological work for the Departement of Indre et Loire and neighboring Departements which have no laboratory facilities of their own, for the city of Tours, for the General Hospital and the Military Hospital (which are in the same enclosure), and for the Medical School. They examine upward of 300 specimens a month.

The standard of cleanliness in hotels naturally varies not only with the training of the servant personnel but also with the habits of the guests. But of the universal desire to make guests comfortable there can be no question. Mosquitoes have been conspicuously absent. The number of flies varies directly with the local cleanliness.

C. G. P.

Tours, August 13, 1926.

CONNECTICUT DEPARTMENT OF HEALTH

Morbidity Report for the Week Ending
August 28, 1926

Diphtheria	10	Conjunctivitis, infectious	3
Last week	8		
Typhoid fever	4	Encephalitis, epidemic	1
Last week	4	German measles	2
Scarlet fever	8	Mumps	1
Last week	14	Pneumonia, lobar	2
Measles	10	Poliomyelitis	1
Last week	13	Septic sore throat	24
Whooping cough	21	Tuberculosis, pulmonary	25
Last week	25		
Bronchopneumonia	6	Gonorrhea	18
Chickenpox	3	Syphilis	19

NEWS ITEMS

COMPENSATION FOR INDUSTRIAL ACCIDENTS

The *New York Times* states that Dr. E. H. Lewinski-Corwin of the Hospital Bureau of New York will present the problem of workmen's compensation before the American Hospital Association at the Atlantic City meeting during the week of September 27.

Dr. Corwin will raise the question at the convention as to whether it is not a diversion of trust funds when they are applied to the maintenance of cases in hospitals which are wholly covered by insurance. Money that should be paid to hospitals for the care of compensation cases, Dr. Corwin declares, is being paid out in dividends to insurance company stockholders while the patient is being pauperized by the compulsory acceptance of charity.

"No State in the Union has a workmen's compensation law that is entirely satisfactory," Dr. Corwin went on. "Of all the types of benefits, those pertaining to medical and hospital care have been the least satisfactorily worked out. The medical and hospital aspect of workmen's compensation continues to be the most neglected phase and demands a remedy.

"The hospitals do not feel that they should be called upon to supplement the deficiencies in the scale of benefits of compensation laws. They feel this expense should be borne by industry. Some of the grievances against the casualty companies are well grounded, but the basic difficulties are traceable to the type of legislation prevailing in each individual State, the method of administration of the law, and also, to a degree, to the lack of understanding between hospitals with regard to a uniform attitude toward those problems."

THE NEW NEWTON HOSPITAL—Plans for the Newton Hospital have been approved. Dr. F. A. Washburn, director of the Massachusetts General Hospital, will be consultant to the architects.

The new hospital will be built near the present structure. It will be of fireproof construction and five stories. The building fund of $1,500,000 has been more than two-thirds subscribed.

THE NEW MEDICAL ARTS BUILDING, WORCESTER, MASS.—A new two-story edifice on Pleasant Street, Worcester, Mass., designed to meet the requirements of physicians, has been erected and is ready for occupancy. On the first floor are two stores, which it is expected will be occupied by concerns dealing in such goods as may be related to medicine. On the second floor a pharmacy will be installed.

The finish of the building is artistic and the rooms will be supplied with facilities for the installation of all necessary apparatus. Two elevators will supply adequate service.

The construction is of the fireproof type and a sprinkler system gives added protection.

Worcester is to be congratulated, for this building gives assurance of excellence in caring for those who need medical attention.

REMOVAL—Dr. J. Marcus has moved from 18 Parmenter Street to 261 Hanover Street, Boston, Mass.

APPOINTMENT OF DR. R. B. DEXTER—Dr. Roderick B. Dexter, who has been assistant superintendent of the State Hospital at Taunton, Mass., has been appointed assistant to the Commissioner of the State Department of Mental Diseases.

Dr. Neil A. Dayton, who has held this position, has been transferred to the position of director of the Division for Feeble-minded.

NOTICES

TRAVEL STUDY CLUB OF AMERICAN PHYSICIANS

At the completion of its recent European Study Tour, the Travel Study Club of American Physicians elected Dr. Fred H. Albee of New York as president, Drs. Edward B. Heckel of Pittsburgh and John P. Lord of Omaha as vice-presidents, and Dr. Richard Kovacs of New York as secretary.

Plans are being prepared for the next study trip, including the Central European countries: Germany, Austria, Czechoslovakia, Hungary and Italy.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following open competitive examinations:

Physiotherapy Aide
Physiotherapy Pupil Aide
Physiotherapy Assistant

Applications for the positions listed above must be on file at Washington, D. C., not later than October 9 and November 27. The dates for assembling of competitors will be stated on the admission cards sent applicants after the close of receipt of applications, and will be about ten days after that date. Applications received after a closing date will be considered for the next date.

The examinations are to fill vacancies in the field service of the Public Health Service and the Veterans' Bureau, a vacancy in St. Elizabeth's Hospital, Washington, D. C., and vacancies in positions requiring similar qualifications.

The entrance salaries range from $720 a year with quarters, subsistence, and laundry, for the lower grade positions, to $2,040 a year, without allowances, for the higher grade positions.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of United States Civil Service Examiners at the postoffice or custom house in any city.

Medical Artist

Applications for medical artist must be on file at Washington, D. C., not later than October 12. The examination is to fill a vacancy in the Hygienic Laboratory, Public Health Service, Washington, D. C., at $2,100 a year, and vacancies occurring in positions requiring similar qualifications.

The duties of this position are to reproduce in colors both normal and pathological macroscopic and microscopic animal structures and to perform work of a minor character, such as lettering, chartmaking, and the preparation of illustrations for public exhibits.

Competitors will not be required to report for examination at any place, but will be rated on samples of work submitted with their applications.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the Board of United States Civil Service Examiners at the postoffice or custom house in any city.

REPORTS AND NOTICES OF MEETINGS

THE NEW HAMPSHIRE STRAFFORD COUNTY MEDICAL SOCIETY

The New Hampshire Strafford County Medical Society will hold its semi-annual meeting at the American House, Dover, N. H., Thursday, September the 30th, 1926, at 10 A. M. A business meeting will precede the program which will include an address on "Goitre" by Dr. H. M. Clute of the Lahey Clinic, Boston, and a paper, "Some Observations From a Gastro-Intestinal Clinic," by Dr. Sara M. Jordan, also of the Lahey Clinic. A banquet will follow at 1 P. M. A cordial invitation is extended to the Medical Fraternity to attend this meeting.

The annual meeting of this society will be held in January, 1927. Dr. W. J. Roberts of Rochester, N. H., is President; Dr. J. J. Buckley, Secretary-Treasurer, Dover, N. H.

MEETING OF THE NEW ENGLAND SOCIETY OF PSYCHIATRY

THE New England Society of Psychiatry is to meet with Dr. Harlan L. Paine at the Grafton State Hospital on Wednesday, October 6, 1926. The speakers are: Dr. Buell L. Ashmore and Dr. Winfred Overholser.

C. A. BONNER, M.D.,
Secretary, Treasurer, N. E. Society of Psychiatry.

MEETING OF THE MASSACHUSETTS GENERAL HOSPITAL STAFF

The next meeting of the Massachusetts General Hospital staff will be held on Thursday, October 14, at 8:15 p. m.

The program is as follows:

1—Presentation of cases.
2—Dr. Hans Zinsser on Pneumonia.
3—Dr. George R. Minot on Relation of Diet to Pernicious Anemia.

CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

THIS congress will be held in Montreal, October 25-29, 1926.

The surgeons of Montreal have arranged, under the direction of the local committee, with Dr. Alfred T. Bazin as chairman, a decidedly interesting clinical program, which includes clinics and demonstrations at the hospitals each morning and clinical demonstrations at headquarters each afternoon.

Programs for the evening meetings, as arranged by the executive committee, include papers by a number of distinguished visitors from abroad and eminent surgeons of the United States and Canada. Among the distinguished visitors will be Professor John Frazer, University of Edinburgh; Professor Archibald Young, University of Glasgow; Professor Roberto Alessandri, Rome; Professor D. P. D. Wilkie, University of Edinburgh; Mr. W. Sampson Handley, London; Sir Ewen J. Maclean, Cardiff, Wales.

Reduced fares have been authorized by the railways of the United States and Canada, a rate of one and one-half the regular fare being in effect. Full fare is to be paid for the journey to Montreal and a certificate procured from the agent when ticket is purchased. This certificate, when validated at headquarters, will enable the purchaser to secure a return ticket by the same route at one-half the regular fare.

The session will open at 9:30 on Monday, with the hospital conference.

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

THE regular meeting of the Wachusett Medical Improvement Society was held at Holden District Hospital, September 1st at 7:30 P. M. After a luncheon served by the Hospital Staff, meeting was called to order by the President, Dr. G. N. Lapham. The paper of the evening was by Dr. E. L. Hunt, Assistant Medical Examiner of Worcester City Hospital. His paper was of exceptional interest as he explained the relationship of the Medical Examiner to the General Practitioner and cited many interesting incidents relative to his work.

The next regular meeting will be held October 16th and the Society will be favored by a paper by Dr. W. Irving Clark, Surgeon to the Norton Company, Worcester, Mass., and his subject will be "Industrial Medicine."

O. DRAPER PHELPS, *Secretary.*

BOOK REVIEW

Clinical Examination of the Nervous System. By G. H. MONRAD-KROHN, with a foreword by T. GRAINGER STEWART. 3rd ed. Paul B. Hoeber, Inc., 1926, pp. xvi + 201.

A third edition of this well-known handbook has appeared. Since the second edition, in 1921, there has been a French translation, in 1923. The book has, therefore, been popular and deserves to be so. In the third edition the number of pages is increased from 135 to 201. One of the great difficulties in books of this type is to limit the amount of material and the author has succeeded in doing this fairly well, although the book is already getting into the textbook class. It is an ideal book, however, to recommend to medical students and hospital interns. The photographs and illustrations are exceptionally good; the diagrams, however, are very crude. The author, a Norwegian, Professor of Medicine in the Royal Frederick University, Oslo, is skilled enough to write in English, so the book does not suffer from translation. There are a number of omissions, but none of a very important nature. He does not mention the combined ventricular and lumbar puncture useful in the diagnosis of cerebellar lesions. Numerous misspellings are noted. *Lipiodal* is spelled *lipjodal* in many places. Personal names are also misspelled—*Tobay* for *Tobey,* and *Wildbrand* for *Wilbrand.* The book has earned a well merited success and can be highly recommended.